THE NEW-YORK
JOURNAL OF MEDICINE
FOR NOVEMBER, 1852.

PART FIRST.

ORIGINAL COMMUNICATIONS.

ART. I.—*Cases in Surgery.—Amputation at the Knee-joint.* By W. PARKER, M. D., Professor of Surgery in the College of Physicians and Surgeons, New York. Reported by STEPHEN SMITH, M. D.

CASE.—*History.*—John McNeill, aged 25 years, of good constitution, and temperate habits, native of New-York, and cabinet-maker by occupation, came under observation on the 7th of April, 1852. He states that when four years of age he had an attack of scarlet fever, which left him with the right leg partially paralyzed, the foot being turned inwards, and the patella displaced to the outer and inferior aspect of the external condyle. Arrest of development occurred, and this limb has now an atrophied appearance, being smaller, and about two inches shorter than the other, and of diminished sensibility. It has several times suffered injuries, and has twice been frost-bitten, but without any permanently ill effects. The patient's wish is to have his deformed and paralyzed limb made more serviceable by amputation, and the substitution of

an artificial leg. Upon examination, it was decided that disarticulation at the knee-joint would afford, under the circumstances, the most serviceable stump and the most useful extremity. The condition of this articulation favored the proposed operation, and seemed to promise as fair results as this species of amputation has ever afforded.*

Operation.—The patient was placed upon a table of suitable height, and a mixture of chloroform and ether administered, to the influence of which he was observed to yield with unusual readiness. Pressure being made upon the femoral artery in the groin by an assistant, and the integuments of the thigh drawn forcibly upward from the knee, while the leg was held in a flexed position, the operation was commenced by making the anterior flap, having its lower border about an inch below the insertion of the ligamentum patellæ, and carrying the knife into the joint over the head of the tibia, and completed by making the posterior flap from the calf. The patella was dissected from its attachments and removed. But little blood was lost; five ligatures were employed to secure arteries; the flaps were brought together and united by sutures, and the stump dressed.

It should be stated that during the operation, at one time the pulse fell to forty beats per minute, the respiration became irregular and scarcely perceptible, and for a moment he seemed sinking past recovery. Active measures for his restoration were immediately had recourse to, such as artificial respiration, brandy and ammonia, and reaction soon came on. The remainder of the operation was completed without the further employment of chloroform, although the patient urgently requested it.

Treatment.—Pulse continued at 132 per minute for 24 hours after the operation; ordered an anodyne, which induced sleep, and the case progressed favorably for several days.

5th day.—During the last few hours there has been some

* The patient had previously consulted Mr. Palmer, the manufacturer of artificial limbs, who advised amputation at the knee-joint, as the point best adapted in his case for the adjustment of a wooden limb.

bleeding from the stump, which shows a disposition to hemorrhage. It was first checked by elevating the part and applying cold. It recurred again, and was controlled this time only by compressing the femoral artery in the groin. The amount of blood lost thus far was not sufficient to produce any constitutional effect.

6*th day*.—The dressings were removed and the stump exposed; the anterior flap exhibited a slight erythematous blush, which disappeared on the application of cold. It being deemed advisable, as the flaps had gradually become distended, the sutures were cut and the wound laid open; several clots of blood were removed, two cutaneous arteries secured, and the wound left open. During the afternoon there were two recurrences of hemorrhage, and after the latter the anterior flap was turned back and an artery tied; wound still left exposed. The tendency to hemorrhage, however, continued, and the oozing was checked by the application of a solution of alum. Anodynes were continued to quiet the irritation, and a solution of quinine was commenced as a tonic. During the following five days his condition continued gradually to improve, and the wound to granulate.

11*th day*.—Last evening the stump again began to bleed more freely and steadily than formerly, but it was impossible to determine the precise source of the hemorrhage. It was finally stopped by compression of the femoral artery, and there was no return of bleeding during the night.

12*th day*.—Hemorrhage again returned, and was controlled by pressure applied to the femoral artery.

13*th day*.—The bleeding recurred in the morning, and could be controlled only by compressing the artery; this was kept up the greater part of the day until about 6 o'clock, P. M., when a ligature was placed around the femoral artery. The constitution had before this begun to feel the continued drain of blood from the stump, and the pulse again rose to 132 per minute. A yeast poultice was applied to the stump, and his former treatment continued. For the two following days he suffered much from nausea and vomiting, the result of imprudence in diet; after this he began to improve in strength, the pulse became less frequent, and the wound discharged freely, presenting a healthy, granulating appearance.

20th day.—Free hemorrhage again occurred from the stump; the blood probably escaping from the perforating arteries through their anastomoses with the ischiatic, a branch of the internal iliac artery. As the loss of blood had now become a serious feature in the case, and was likely soon to threaten the life of the patient, and as every expedient had been resorted to, but unsuccessfully, to prevent its recurrence, it was resolved to re-amputate the limb through the thigh. Accordingly ether was cautiously administered, new flaps formed, the lower extremity of the femur sawed off, and six arteries tied including the femoral.

25th day.—Patient is progressing favorably in every respect. Nothing worthy of particular note occurred in the further history of this case. The ligature on the femoral artery came away on the 24th day; those on the stump separated in about the same period. These ligatures were treated very cautiously owing to the tendency to hemorrhage. The patient continued gradually to recover his strength after the last operation, under the use of tonics and generous diet, and, excepting the occurrence of an abscess on the extremity of the stump, no unfavorable symptom has been experienced.

Remarks.—The earliest notice of amputation of the leg at the knee-joint, is by the Father of Medicine. By the ancient surgeons, amputation of the extremities was limited to cases of gangrene, and with their inefficient means of arresting hemorrhage, so much did they fear this complication, that they cautiously removed only the dead portions, carefully avoiding making a breach in the living tissues, and selecting as most favorable for the operation the point where it could be most expeditiously performed. Hence Hippocrates, in his article on the Articulations,* directs: "Those parts of the body which are below the boundaries of the blackening, are to be removed at the joint as soon as they are fairly dead and have lost their sensibility; care being taken not to wound any living part; for if the part which is cut off give pain, and if it should prove not to be quite dead, there is great danger lest the patient may swoon away from the pain, and such swoonings often

* *Works of Hippocrates*, Vol. II. p. 639, *Sydenham Soc. Ed.*

are immediately fatal. I have known the thigh-bones, when denuded in this manner, drop off on the eightieth day; but in the case of this patient, the parts below were separated at the knee on the twentieth day, and, as I thought, too early, for it appeared to me that this should be done more guardedly." He remarks, also, that "when the forearm and leg drop off, patients readily recover." Disarticulation would seem therefore to have been the earliest form of amputation of the extremities practised, but was performed for the most part through dead tissues. In such veneration were the works of "divine Hippocrates" held by ancient writers, that these rules in regard to amputation were rarely departed from previously to the middle ages.

It is plain that both amputation in the contiguity as well as continuity of bones, as practised by early surgeons, being generally through the dead structures, or encroaching but slightly on the living, has little relevancy to this operation in modern times. When the means of arresting hemorrhage were perfected by the employment of the ligature, the operation came to be resorted to in accidents and other diseases than gangrene, and the methods by which it might be most skilfully and successfully performed, began to be earnestly discussed. Amputation at the articulations was again revived, and according to Pigrai, were of not very infrequent occurrence. He says, "Some start objections to cutting in the joint itself, or near it, because of the nervous parts; nevertheless the danger from these are not so very great. I have seen many such (amputations) which have done well." Parè amputated successfully at the elbow-joint, and still later the great operations of disarticulation of the thigh and arm at their respective articulations with the trunk began to be agitated, and their subsequent successful performance has rendered them legitimate in modern surgery. The only notice of amputation at the knee-joint at this early period is by Fabricius Hildanus, who remarks briefly that he performed this operation in 1581, on a young man of Dusseldorf, who had his leg fractured; and he adds that he had previously performed it under many circumstances, and as an operation it was familiar to him.

The first writer of modern times, who made this operation

at the joints the subject of special study, was Brasdor, whose "*Essai sur les Amputatione dans les Articles*," was published in the fifth volume of the *Memoirs of the Academy of Surgery*, Paris. This writer took strong grounds in favor of amputation in the contiguity of bones, and advocated a like amputation of the knee as well as shoulder and hip-joints. More recently M. Blandin has reproduced the arguments of Brasdor, and added to their importance the sanction of his own opinions. In 1830, M. Velpeau published his *Mémoire sur l'amputation de la jambe dans l'articulation du genou*,* a paper designed to establish the operation of disarticulation of the leg at the knee-joint. Textor and Jäeger in Germany wrote favorably of this operation, and the latter is stated to have made a collection of all the published cases, thirty-seven in number. In France, amputation at the knee-joint has been opposed by Larrey and Dupuytren, and since the publication of his essay, Velpeau, from farther experience, has been led to remark, that he feared he had exaggerated the safety of this operation in his attempt to revive it in 1830. A still later and high authority, M. Malgaigne, considers this "another of those operations too inconsiderately condemned, which, when you have a choice, should be preferred to amputation of the thigh in the continuity."

The favor and consideration which this operation has received from British surgeons, as far as the records of their experience give evidence, has been very limited. Mr. Ferguson says, "amputation at the knee-joint has never, to my knowledge, been performed in this country." We shall take occasion, however, to refer to a single case which has fallen under our notice. The operation of Mr. Syme, which he entitles *Amputation at the knee-joint*, is rather an amputation in the continuity than the contiguity of the bone, and cannot be considered a fair test of the operation we now have under consideration.

The experience of American surgeons in amputation at the knee-joint is not inconsiderable, and the success which

---

* *Dict. de Med. et Chir. Pratique*, Art. Amput. *Archives Générales de Médécine*, t. xxiv. p. 44.

has attended its performance, bears a flattering comparison with that of any other country. The first operator was Dr. Nathan Smith, of New Haven, Connecticut, and his method of operating has the merit of being original and the case of being successful. The number of cases of which we have any knowledge, amounts to twelve, the majority of which have been performed within the last eight years. It will be a matter of local interest to notice, and we allude to the fact with pride, that of these twelve operations, seven were performed in this city, of which three were fatal, three successful, and one was re-amputated; and of these seven cases five occurred in the City Hospital, of which three were fatal, and two entirely successful. The meagerness of the reports of many cases, where the just appreciation of the operation depends upon so many circumstances peculiar to each individual case, is to be regretted; but with this allowance, the facts which we shall now proceed to exhibit, are conclusive in regard to many points hitherto unsettled.

Case 1.—The first case in this country was recorded by Dr. Nathan Smith, of New Haven, Ct., and is as follows:*

For several years I had contemplated amputating at the knee-joint, whenever a case should occur in which it would be imprudent to operate below the knee, on account of disease in the bones or soft parts, and in which the superior part of the articulation was sound. I had often performed the operation on the dead subject, and found that it might be so accomplished as to leave a very good stump. A case warranting the operation occurred to me in April, 1824. Miss. R. D——, of Brunswick, Me., having a disease in both the bones and the soft parts of the leg, of long standing, and so extensive that it was thought improper to operate below the knee, and, as the inferior part of the femur was sound, I amputated at the joint. The operation is performed as follows: Mark two points, one on the out, and the other on the inside of the limb; the latter half an inch below the head of the tibia, and the other opposite to it. Then draw a semicircular line from one point to the other, over the anterior part of the leg, and in such a direc-

* American Medical Review, Vol. II., p. 370.

tion, that its lower part shall touch the lower part of the tubercle on the tibia into which the ligament of the patella is inserted, and then mark another circle on the posterior part of the leg exactly corresponding to the former. The above lines limit the two flaps, the former of which will be formed of the patella and its ligaments, and the latter of the head of the gastrocnemeus, the tendons of the flexor muscles, and the popliteal blood-vessels and nerves. The operator should first raise the anterior flap with the patella, which will expose the anterior part of the joint, and render the division of the lateral ligaments easy. Two or three strokes of the knife will then complete the section of the lower flaps with the crucial ligaments.

In the case mentioned above, the patient recovered without the occurrence of any thing unpleasant. It was accomplished with less pain to the patient and trouble to the operator, than when the separation of a bone is required. The stump will obviously be more useful, as the lower part of it is formed by the patella, which becomes anchylosed to the femur.

CASE 2.—M. L. Blaquière states that, while in Mexico, in 1833, he amputated, at the Hospital of Saint Juan de Rio de Oaxaca, the right leg at the femora-tibial articulation, in an Indian, aged about twenty-five, at the village of Tlacolula, in whom the whole leg, to within a few inches of the knee, had become sphacelated from hot bricks, used during the cold stage of Asiatic cholera, then prevailing in that capital. M. Blaquière did not wait for the limitation of the gangrene, as the patient was in good condition and without fever. He adopted the process of Velpeau,* and had every reason to be satisfied with it; for, although the ruff of integuments intended as a flap to the condyles, also sloughed away, and the cartilaginous incrustation of the articulating surface of the condyles exfo liated; the surgeon, in another visit to Mexico, in 1843, found, on a visit from the patient, that the wound had perfectly healed, with a very small cicatrix, and that the limb had been made very serviceable by an apparatus which the patient had contrived.

* Mott's Velpeau, Vol. VII.

Case 3.—The operator in this case was Prof. Pancoast, of Philadelphia, from whose *Treatise on Operative Surgery* the details are copied.

In the winter of 1841, I removed, before the class of Jefferson Medical College, at the Pennsylvania Hospital, the leg of Rachel Morris, at the knee joint. The patient was about thirty-five years of age, and had suffered, for several years, with necrosis of the entire shaft of the tibia. The profuseness of the purulent discharges, in conjunction with repeated attacks of diarrhœa, had so broken down her strength, that it had been difficult to prevent her sinking. As the bone was found involved up to the condyles of the tibia, and the integuments were impaired so high up as to render it impossible to perform even amputation through the condyles after the manner of Larrey, there was no alternative save the removal of the limb through the thigh or at the knee-joint. As the chances of recovery after amputation of the thigh, considering her exhausted state, was deemed but small, I decided to remove the limb at the knee-joint, especially as the structures of this articulation were unaffected by disease.

The operation, in which I was assisted by Drs. Mütter and Coates, and others, was done in about two minutes, with the scalpel merely, according to the following process,* though from the extension of the disease of the front of the leg, I was unable to cut the anterior flap of the length described as most appropriate. The cure, which was not rapid, as the cicatrization was not completed till the end of four weeks, was unattended by a single bad symptom—the patient gradually increasing in health and strength, from the first day of the operation. From the unavoidable shortness of the flap covering the condyles, one of these processes became partially exposed, so as to allow me to observe the changes which the articular cartilages underwent. This structure neither reddened nor became painful, so as to exhibit any coating of synovial membrane, or other appearance of organization. It became, by the end of a week, softened and pulpy on its free surface, in the same manner as occurs when the joint is subjected to the

* See description of his operation on subsequent page.

macerating tub of the anatomist. The pulpy lamina, which was so soft as to leave a track, when rubbed with the end of a probe, was insensibly removed with the discharges, by a continuation of the same process of softening and removal; the thin lamina of bone covering the articular face of the condyles was completely bared of the cartilage in the third week. This lamina first presented a dark gray aspect; some small gray conical elevations soon after made their appearance on its surface, and shortly grew into florid healthy granulations, to which, and to other granulations that sprang from the several ends of the conical ligaments, the cutaneous flaps were ultimately firmly united. No appearance of synovial inflammation of the bursa about the joint was manifested during the treatment, and the patella remained movable, on the upper anterior surface of the condyles. The line of cicatrization was drawn backwards, by the hamstring tendons, so as to be opposite the notch, between the condyles, and the patient now preserves a useful limb, with which she moves about with great ease and facility, by applying a healthy surface of the skin covering the condyles, upon a hair cushion at the top of the ordinary wooden leg.

CASE 4.—The following case was reported to the *Ohio Medical and Surgical Journal;* Vol. I. p. 126, by Dr. Catley, of Delaware:—

Mr. Solomon Schmel, æt. 33, says he was formerly a resident of Berks County, Pa., when, about thirteen years ago, he was thrown from a horse, the animal falling with him; and that, whilst on the ground, the popliteal artery of his right leg was lacerated by the shoe of the horse, and he thinks part of it was torn away. A practitioner was called, who, to stop the bleeding, bound the limb just above the knee, very tightly. The bandage was allowed to remain two days and nights without being slackened, which caused, ultimately, mortification of the lower part of the extremity, up to the point around which the bandage was applied. A second practitioner was called, who removed the leg by disarticulation at the knee-joint. The soft parts, however, sloughed about two inches higher up the limb, leaving the bone nearly naked. This, in

time, was again mostly covered, with something like flesh and skin, but it never healed entirely, though he had been able to perform some labor. For the last year, however, the diseased part has been getting much worse. On examination, the stump presented the following appearance:—On the lower part, for about the space of three inches in breadth, there was neither cutis nor cuticle, but a sort of epithelium, terminating in a mass of fungus, which covered the end of the stump, and also the posterior part, to the height of two or three inches. The texture of this fungus was as coarse as a very coarse sponge. It gave out, at every point, a profuse sanious discharge, and bled freely on being slightly touched. Amputation of the thigh was resorted to, and the patient recovered his health.

The following were the appearances of the amputated portion on dissection:—The fungus gradually became denser, and terminated next the bone in a sort of fibro-cartilaginous substance. The condyles of the femur were absorbed, and the end was rounded or bulbous; the medullary canal was prolonged to near the end of the bone, increasing in calibre towards the lower part, which also terminated in a bulbous extremity. The osseous portion around this was composed of two tables, with a cancellated structure between them, the cells of which were filled with a fluid resembling healthy pus; the bone was not carious or discolored.

Case 5.—The following case occurred several years since at the *Colored Home* in this city, under the charge of Dr. J. D. Fitch, resident physician. A colored man entered the institution, suffering apparently from a rheumatic affection, located principally in the knee-joints, and was accordingly put under the ordinary treatment for that disease. After a time the pain increased greatly in severity, and became concentrated in one knee; upon examination of this joint a pulsating tumor was found to exist in the popliteal region, and his difficulty was at once decided to be aneurismal. Dr. Sabine, one of the consulting surgeons of this Charity, was called in, and upon consultation, proceeded to apply a ligature to the femoral artery. The case progressed most unfavorably, gangrene of the foot came on, sloughing ensued, and it being in the height of

summer, every thing conspired to depress the general system and hasten the destructive process. The treatment was tonics and stimulants, and such local applications as would act as correctives. The sloughing progressed, first separating the foot from the leg and then extending to the knee, where disarticulation was nearly effected, when the knife was resorted to, and the process completed. The stump was but poorly covered with the remaining integuments, yet granulations sprung up freely over the exposed surface, and cicatrization was in due time accomplished. From the separation of the leg the patient's health began to improve, and became in a measure again established. Although no trial of the stump was had by the application of an artificial limb, yet it had the appearance of being sound and well-conditioned in every respect. He remained in the institution as an assistant until his death, which occurred six months after the operation from phthisis.

CASE 6.—This case presented itself at the *College Clinique*. The patient was from the South, a saddler by occupation. Amputation was practised on account of a gun-shot wound of the leg, and the knee-joint selected because the surgeon had no other instrument than the razor, with which he performed the operation. The stump was a perfect specimen of the kind, and did great credit to the operator. The patient, however, acknowledged to a manufacturer, to whom he made application for a wooden limb, that the stump was tender on pressure.

CASE* 7.—This patient was a female, aged thirty-five, suffering from a burn of the foot, leg and thigh. The operation was performed at the New-York Hospital February 9th, 1846, and terminated fatally on the 26th day.

CASE† 8.—Patient a male, aged twenty-one, suffering from a compound fracture of fibula with terrible laceration. The

* *Statistics of Amputation in the New-York Hospital.* By W. H. BUEL, M. D.—*Am. Jour. Med. Sci.* 1848.

† *Statistics of Operations performed in the New-York Hospital.* By F. D. LENTE, M. D. *Transactions of American Medical Association*, 1851.

operation was performed at the New-York Hopital, October 19th, 1849, and proved fatal on the third day: chloroform was administered.

Case 8.—Patient a male, aged thirty-six, suffering from syphilitic disease of the bones of the leg with gangrene of the soft parts. The operation was performed at the New-Hork Hospital, January 21st, 1851, and terminated fatally on the eighth day from the progressive effects of the disease: ether was employed.

Cases 10 and 11.—In addition to the above cases we may allude to the fact, that amputation at the knee-joint has been twice performed at the New-York Hospital, within the last year, with complete success.

For the following particulars of these operations, we are indebted to one of the resident surgeons of that institution.

The first case entered the hospital, Feb. 17th; patient was a laborer, fifty years of age, whose leg was so nearly severed by rail-cars, that the few remaining attachments were cut, and the lower two-thirds of the leg removed previously to his entering the hospital. The soft parts were lacerated both posteriorly and anteriorly still farther towards the knee. Amputation at the knee-joint was decided upon, and this operation performed, twenty hours after the accident, by Dr. Buck, with anterior and posterior flaps: the patient not being under the influence of an anæsthetic. Inflammation of the stump arose demanding active treatment; suppuration became free, the pus burrowing among the muscles of the thigh; delirium came on with diarrhœa; these severe symptoms however finally subsided, convalescence was gradually established, and he was discharged August 1st, in good condition and with a fair stump.

The second case was that of a boy, aged 13, who entered the hospital, April 30th, with a compound comminuted fracture of the leg. The operation was performed by Dr. Buck in a manner similar to the preceding, except that the articular surface of the femur was sawn off to promote more speedy granulation, and the patient took ether. Active inflammation

set in requiring antiphlogistic treatment; suppuration followed, but not to so great an extent, as in the former case. At this stage of the cure he was treated as the former, with tonics and stimulants, and with similar results. He was discharged, August 18th, in good health, and with a serviceable stump.

The following cases were collected by Velpeau, and embrace the facts on which he based his approval of the operation.*

CASE 1.—In one of the cases mentioned by J. L. Petit, disarticulation of the leg appears to have been preferred only from a lack of instruments to amputate in the continuity. Necessity knows no law, the author judiciously remarks.

CASE 2.—The other occurred in a young man, who had exostosis and caries of both bones of the leg throughout their whole extent. The patient, who had not slept for more than two months, passed a comfortable night immediately after the operation, and continued tranquil to the completion of the cure, which would have been much more prompt, according to Petit, if they had removed the patella. We have every reason to believe that these two amputations, of which J. L. Petit was only a witness, were completely successful.

CASE 3.—A slater, who, nineteen days before, had fallen from a height of one hundred and thirty-two feet, was received into the Hospital of Dijon on the 26th of July, 1764. The leg was in a state of gangrene as high up as the knee. Hoin disarticulated the leg, and though there were not soft parts sufficient to allow of immediate reunion, the man ultimately got well. In the month of July, 1771, he was still living; could use a wooden leg with freedom, and ascended the scaffoldings and upon roofs as he had done before the accident.

CASE 4.—Gignoux, of Valence, speaks of a young girl whose leg had been separated from the thigh by gangrene, and whose health for the last four years had been completely restored, at the time when he informed Brasdor of it.

CASE 5.—Sabatier mentions having seen a boy in whom a ball had carried away the leg without wounding the patella, but without being followed by any unpleasant consequences.

---

* *Archives Générale*, t. xxiv., p. 46, and *Mott's Velpeau*, Vol. III.

Case 6, is that of Dr. Nathan Smith, already cited.

Case 7.—A scrofulous patient, eighteen years of age, was amputated in the same manner, in the year 1824, at the Hospital of St. Louis, by M. Richerand. A variety of accidents, such as purulent abscesses and collections, it is true, at first alarmed the surgeon, but the wound, nevertheless, ultimately cicatrized.

Case 8.—M. Dezeimeris met some weeks ago in the streets of Paris with a male adult, who had been amputated at the knee. This person could walk with ease, but by means of a crutch, and without using his stump as a point d'appui on the artificial leg.

Case 9.—Finally, a ninth example of disarticulation of the leg has been recorded in the first volume of the *Dictionnaire de Médécine et de Chirurgie Pratique.* The patient, who was operated upon by M. Blandin, at the Hospital Beaujon died on the sixth day after the operation, in consequence of phlebitis.

Case 10.—In the month of January, 1830, I received into the Hospital of Saint Antoine, an orphan boy, aged 19, who was sent to me by M. Kapeler, physician in chief of the house. This young man, very poor, reduced by suffering and diarrhœa, was affected with a very extensive necrosis of the right tibia, and earnestly solicited relief at our hands. The operation was fixed for the 14th of the same month. As there was not a sufficient quantity of soft parts remaining behind, I proposed to obtain a flap in front, of a certain length. The wound reunited but imperfectly. No accident happened; and though there still remained exposed a transverse surface, an inch in width, from before backwards, which the flaps would not cover, the cicatrix, nevertheless, was completed, at the expiration of two months. This patient, whom I have often since seen, enjoys the most perfect health. The stump bears and transports the weight of the body on the wooden limb, with the same facility as if he had only undergone amputation in the continuity of the leg.

Case 11.—A man twenty-nine years of age, of good constitution, and born in the Colonies, was sent to me at the Hospital of Saint Antoine, on the 24th of May following, by M.

Thierry, who had been sent for to him for a comminuted fracture of the left leg. Gangrene soon made its appearance, followed shortly after by an ichorous suppuration; which, becoming more and more copious, with pains excessively acute at the time of dressing, and even in their interval, and an almost continued febrile movement, with diarrhœa, &c., soon made me, on the other hand, entirely despair of saving the limb; I decided upon amputation at the knee, and performed it on the 4th of June. The febrile reaction made it necessary to bleed on the first and second day. No accidents afterwards occurred, up to the 5th; but on the 6th and 7th a superficial erysipelas made its appearance, and reproduced the fever. In spite of this inter-current phlegmasia, and of two small purulent patches, which formed at a later period at the angles of the condyles, and finally of the consequences produced by deviations in regimen, causing, in fact, a real attack of indigestion—the cure was completed by the sixtieth day.

CASE 12.—In the month of July, 1830, I had to examine, at the central Bureau of Hospitals, a young man, aged nineteen years, who had been amputated seven years before, and who came to ask for a new wooden leg. He told us that the operation had been performed upon him at the Hôpital des Enfants. The cicatrix was behind; and though the inner condyle, from being an inch longer than the other, could alone rest upon the artificial limb, he has, nevertheless, always been able to walk as well as if he had undergone amputation below the joint.

We may add to the foregoing the two following cases by Baudens.*

CASE 13.—A soldier in the skirmish at Tafna, 26th Jan., 1836, received in his right knee a ball, which, after shattering the patella, lodged in the inner condyle of the os femoris. M. Baudens having attentively examined the wound, judged that the case was one well suited to the performance of amputation in the joint itself. He commenced the first incision two inches below the patella ligament, and carried it round on each side, to a point an inch and a half below the centre of the popliteal space. The integuments in front were then carefully dissected

* *Medico-Chirurgical Review*, 1837.

upwards, as high as the upper edge of the patella; the joint laid completely open all round, by dividing the capsular and other ligaments; and, while an assistant compressed the popliteal vessels between his fingers, an ample muscular flap was made from the muscles on the back of the leg to cover the end of the femur. It was found necessary to remove portions of both condyles, as they had been fractured, and the ball still lodged nearly an inch and a half deep in the substance of the bone. Five ligatures were applied, and the wound was secured by three sutures. The healing process was considerably retarded by the oozing of blood from the wound; but eventually, a good serviceable stump was obtained.

Case 14.—A young soldier, in the action at the foot of the Atlas, on the first of April, 1836, was wounded by a musket ball, which entered immediately beneath the lower edge of the left patella, and came out in the centre of the ham. The head of the tibia was broken into several fragments. The skin of the leg being drawn strongly upwards, M. Baudens made a circular cut through the integuments. The line of this incision was kept about five finger-breadths below the inferior edge of the patella, and three inches below the condyles of the femur posteriorly. The integuments were then dissected upwards, all round, except behind; the capsular and other ligaments divided, and, while the popliteal artery was compressed by an assistant, the posterior flap was formed by one stroke of the knife. Only one artery required ligature. The lips of the wound were held together by four stitches of the interrupted suture. The healing was speedy and perfect. The circumstance of the gunshot wound in front being above the line of the anterior flap, was rather favorable than otherwise to the cicatrization. It afforded a convenient outlet to any pus which formed. The line of the cicatrix, on the face of the stump, was situated well back in the popliteal space, so that it quite escaped pressure, when the patient used a wooden leg.

The following cases are alluded to by Velpeau, but not with sufficient detail to make them serviceable in an appreciation of the operation. De la Rocque informs us of the case of a young girl seventeen years of age, who was amputated at

the knee and recovered perfectly. Rossi reports having operated twice successfully. M. Chaumet relates a successful case by Pichozel; an American surgeon (?) informed him that he had performed it twice with fortunate results. M. Jobert lost a patient, whose leg he had disarticulated, in consequence of suppuration of the thigh. M. Laguier operated twice, and both cases were fatal; one of his patients had a comminuted fracture of the thigh. Velpeau himself has seen four cases terminate fatally in his own practice, three of which were in a most unfavorable condition for the operation. The first was an old man suffering from grangrena senilis, who died on the twenty-eighth day, in consequence of the reappearance of the mortification in the stump. The second was an extremely fat woman, with an enormous encephaloid cancer of the leg, which prevented him from preserving the integuments, except on the inner side; she was attacked with an extensive suppuration of the thigh, a large ulcer formed upon the sacrum, and she died on the sixty-second day, the wound having, however, a good appearance. The third was a woman seventy-six years of age, who died exhausted from the long continuance of her sufferings. The fourth was a man, forty-seven years of age, strong, and in a favorable condition. In his report to the French Academy on the memoir of Velpeau on Amputation at the knee-joint, Dupuytren stated that he had performed the operation three times, but in every instance unsuccessfully. Volpi and Monteggia have each had a fatal case. In his statistics of the operations performed in the hospitals of Paris, Malgaigne gives nine cases of amputation at the knee-joint, of which seven were fatal. Mr. Fenwick, in a report of the surgical operations performed at the Newcastle-upon-Tyne Infirmary, has added to his tables of the amputations in various hospitals, a fatal case of disarticulation of the leg which occurred at the Glasgow Royal Infirmary.* This case is also published in the surgical reports of that institution, and is the only instance of this operation in Great Britain which we find on record.

In discussing the *propriety of amputation* through the

* *Edinburgh Monthly Journal of Med. Sci.*, 1847.

large joints, writers rarely discriminate between the ball and socket and the ginglymoid articulations, though the greatest possible differences exist, and the operation at one cannot be the slightest test of its application to the other. The former is a small joint, deficient in fibrous tissues, and surrounded by an immense mass of muscular structure; while the latter presents a large articular surface, but thinly covered, and that covering fibrous and ligamentous. The former has long since become an established operation in surgery, while the latter is still *sub judice.*

It is evident from the foregoing facts, which comprise for the most part the experience of the profession in regard to this operation, that many of the objections hitherto raised to amputation through the larger articulation, of which the knee-joint is the type, however plausible in theory are practically without foundation. They *prove* that the dangers from exposing a joint for the purpose of disarticulating a limb, whether of a shock to the system or severe inflammation and suppuration, are unimportant in deciding the question of the general propriety of this operation. Fearful as are the results of the inflammatory process instantly lighted up in ordinary wounds of the knee-joint, dangerous consequences from this source are rare exceptions in the severer wound, of the bisection of this articulation in amputation. It is not to be denied that inflammation of the synovial membrane, the sheaths of tendons, etc., occasionally occurs, and is attended with dangerous suppuration, but this accident is exceptional, and of remote consideration. Although from the nature of the structures entering into the formation of the soft parts of the joint, it would seem probable that troublesome and even, as in this case, dangerous hemorrhage would be a marked feature in the cure, yet it is found in practice very seldom to complicate the case. We must attribute its occurrence here to the wasted condition of the joint, by which little else was left than the fibrous tissue, which prevents that retraction and contraction of vessels essential to a spontaneous arrest of hemorrhage with nearly the same certainty as bone.

They *prove* that the mortality in this amputation, depends not so much upon the point of election, as upon those conditions peculiar to each individual case, which determine the

success of amputations in general. A careful discrimination of the causes of failure, will show that in many instances the patient was already in a hopeless condition previously to the operation, and that the amputation was undertaken with but the slightest prospect of a favorable issue. In several cases the disease was malignant, and the subject fell a victim to its progressive effects. It will show, also, that the operation has been successful under circumstances equally unfavorable; and even where disarticulation of the leg has been the result of the tedious process of sloughing, granulation has succeeded, and cicatrization completed the cure of desperate cases which the surgeon had abandoned to the resources of nature.

They *prove* finally that a stump may be formed of the articular surface of the lower extremity of the femur, which is capable of transmitting the weight of the body to an artificial limb, with no more than ordinary inconvenience. The process of healing, which was open to examination in the case reported by Prof. Pancoast, beautifully illustrates the manner in which absorption, granulation and cicatrization is accomplished in the preparation of the articular surface, and its union with the integuments, and refutes many of the preconceived opinions of theorists in regard to the mode as well as to the possibility of their occurrence. Nor does the bulbous extremity of the thigh-bone, as has been alleged, interfere with the adjustment of an artificial leg, so that the weight which the stump has to bear shall be distributed upon the sides of the limb, equally as well, as in any other form of stump. This is the opinion of a manufacturer, who has adapted artificial legs to such stumps.

These facts lead to the following conclusions: 1. That amputation at the knee-joint is a justifiable operation, as respects the nature of the structures engaged. 2. That it is a justifiable operation as respects the point of election. 3. That the stump formed by the articular surface of the lower extremity of the femur, is as well adapted to the adjustment of an artificial limb, and to sustain and transmit the weight of the body, as when the operation is performed in the continuity of the thigh-bone.

We are aware that many are prepared to question not so much the point selected for performing the operation, as the

propriety of operating at all under the circumstances. The rule which forbids the amputation of a limb, deformed from infancy, or by disease, simply to remove the deformity, at the request of the patient, *amputation de complaisance*, is, in general correct, for the object sought is too trifling to warrant the hazard which the operation involves. It is a well established fact, in amputations practised under these circumstances, that the good health of the patient confers no immunity from the ordinary dangers of the operation. But when, as in the present instance, there is superadded to a deformity of the limb, materially interfering with the occupation of the patient, such a pathological condition as exposes it to accidents of a troublesome and even dangerous character, the propriety or rather the necessity of the operation, is evident. The advantages to be gained by its successful issue more than counterbalance the risk that is run, and the question is not one so much for the surgeon, as for the patient to decide.

The *operation* is performed as in amputations in general, by the flap, the circular and the oval methods. The *flap* may be single or double; when *single*, the flap is made from the calf; this is the original operation of Hoin. When *double*, they may be anterior and posterior, or external and internal; the former was first described by Dr. Nathan Smith, and has already been given in the history of his case; the latter is that pursued by Rossi. The *circular* operation was first performed by Velpeau, and subsequently by Blaquière. The *oval* method has been differently described by Baudens and Sèdillot, the former making the apex terminate in the ham, the latter in front, while M. Velpeau has made the oval transversely. This process is not one of general adoption, but to be resorted to, only when the deficiency of integuments makes it the most expedient. The modifications of the operation made in this country, are by Drs. Nathan Smith and Pancoast. The original operation of the former has already been detailed; the latter thus describes his method:

"The patient is to be placed upon the abdomen. The surgeon, placing the thumb and forefinger upon the condyles of the tibia, at the opposite sides of the leg, makes with a common scalpel on the front of the upper part of the leg, a semilunar incision, which extends as far as three inches below the

tubercle of the tibia, one extremity resting on either side, an inch below the joint. The flap of skin is now to be rapidly dissected towards the joint. The leg is then to be extended and made horizontal. The point of the knife is next to be entered through the skin, at the middle of the back part of the leg, an inch and a half to two inches below the fossa of the popliteal space, and carried vertically downward for the space of three inches. From the lower end of this, the knife is to be continued round, on one side, to strike the line of the first, or anterior incision, so as to mark out a second flap, convex downwards, and extending a little lower than that of the one in front. The lower end of the vertical cut is then united by a similar convex sweep of the knife to the other margin of the front incision, so as to form a third flap. The two posterior flaps are next to be dissected from the fascia up to their base. The leg is now to be again flexed, and from the general loosening of the flaps, already made, the insertion of the ligamentum patellæ upon the tibia will be exposed. This is to be divided across, and the joint opened upon the front and sides, so as to leave the semilunar cartilage on the head of the tibia; the crucial ligaments, as they become subsequently useful as a nidus for granulations, are to be divided at their connection with the latter bone, and the posterior ligament lastly cut. The leg, which is now loose, is to be twisted on the thigh. An assistant grasps the popliteal artery with his thumb and finger, and the surgeon divides below at one stroke with the knife the remaining parts, consisting mainly of the two heads of the gastrocnemius, some of the hamstring tendons not previously cut, and the popliteal vessels and nerves. The patella is to be left in its position. The whole operation may be done with the scalpel; the femoral artery should be compressed with the tourniquet."

The method of operating in this case was that of the double anterior posterior flap, nearly after the manner of Dr. Nathan Smith, without, however, any previous study of the different methods which have been pursued, but merely adapting the double flap to the circumstances found existing at the articulation in this individual case. As far as relates to covering the condyles, and forming as good a stump as the nature of the tissues surrounding the knee-joint would admit, the

procedure was satisfactory, and promised a favorable result. The removal of the patella was rendered necessary from its long-continued displacement on the side of the joint. This should not ordinarily be done, for its position on the extremity of the femur makes the stump more serviceable as a point of support.

Though we have expressed the opinion that amputation at the knee-joint is a justifiable operation, easy of execution, and in its issue depending directly upon the same causes as when performed in the continuity of the bone, and remotely upon the nature of the structures engaged, yet in its repetition, we should be disposed, with an important modification, to adopt the method of Mr. Syme. It has already been remarked of his operation that it is not what it is styled, "amputation at the knee-joint," in the sense in which we have been considering it. Although the primary steps are those of disarticulation of the leg, yet it concludes with making a section of the lower extremity of the femur, and removing the entire joint. At this stage of the operation a modification suggests itself, which, though not yet put in practice, seems to us to be an important improvement. It is, instead of removing the patella, to allow it to remain, and adapt it to the cut extremity of the thigh-bone, in order that anchylosis may take place, and this bone will then become the point of support on the extremity of the future stump. This modification would combine all the advantages of amputation, through the articulation and obviate most of the objections, fancied or real, hitherto and still raised to that operation.

Summary of cases occurring in American Practice.—Whole number twelve, of which three were fatal, two required amputation of the thigh, and seven were completely successful, being a mortality of one-fourth, or twenty-five per cent. Of the seven successful cases, the *causes* of amputation were—injury, 1; chronic diseases, 2; gangrene, 2; not given, 2. Of the fatal cases, there were—injury, 1; gangrene, 1; burn, 1. Of the two requiring re-amputation, 1 was for a chronic disease and 1 for gangrene. The period of death in the fatal cases varied from 3 to 26 days.

Summary of cases occurring in Foreign Practice.—Whole number, including those published by Malgaigne, 37, of which

18 were successful and 19 fatal, giving a mortality of over 51 per cent. Excluding Malgaigne's cases, some of which are probably included in the other reports previously noticed, and it stands—whole number, 28; fatal, 12; successful, 16; being a mortality of nearly 43 per cent. No further summary can be given which will be of value. We may here notice that Jaeger is reported to have collected 37 cases, of which 22 were successful. Doubtless he obtained some facts through the same channels which have been open to us, and hence a certain degree of allowance should be made for the probable repetition of cases in the following table:

General Summary of the Operation of Amputation at the Knee-Joint.

	Whole No.	Died.	Cured.	Ratio of Mort.	Per Cent.
In American Practice,	12	3	9	1 to 3	25
In Foreign Practice,	28	12	16	1 to $1\frac{1}{3}$	$42\frac{9}{7}$
Malgaigne's Collection,	9	7	2		$77\frac{7}{9}$
Jaeger's do.	37	15	22		40
Total,	86	37	49		43

ART II.—*Contributions to the Practice of Midwifery: being a selection of Cases from Private Practice, with Remarks.* By SAMUEL S. PURPLE, M.D. [With illustrations.]

THE following cases have been thought to possess sufficient interest to deserve a permanent record. Although not entirely unique, some of them are of sufficiently rare occurrence as to be but seldom met with, even by the most experienced; and, consequently, may often occasion no small amount of doubt and perplexity when occurring in a necessarily limited rural practice.

CASES OF UNAVOIDABLE HEMORRHAGE OR PLACENTA PRÆVIA.

CASE 1.—On the 27th of June, 1846, was requested by Dr. Hunter to visit Mrs. H——, of No. 27 Vestry-street, who, it was said, was seriously ill from hemorrhage. On my arrival at

her residence, learnt that she was about seven and a half months advanced in her second pregnancy; that, on the 13th inst., she had spent the day on a pleasure excursion—came home somewhat fatigued, and, on retiring for the night, noticed that she had a slight bloody discharge from the vagina. This bloody discharge continued to increase gradually until the 25th, when, for the first time, she consulted her physician. At this time she complained of pain in the back, difficulty of voiding urine, and, on the least exertion, profuse sanguineous discharge from the vagina. No vaginal examination was instituted, but she was immediately ordered to observe perfect rest in bed, and every third hour a powder, containing viii. grains of pulv. ipecac. et opii and iv. of acetate of lead, cool drinks and low diet. Under this treatment there occurred but little hemorrhage during this and the following day, excepting when the erect position was assumed for the purpose of voiding urine—at such times it was somewhat profuse, and accompanied with the discharge of coagula.

On the morning of the 27th, considering herself sufficiently able to rise and attend to some trifling domestic affairs, she made the attempt, and two hours after, on rising from a chair, was seized with a profuse and alarming hemorrhage, which soon produced complete syncope. It was in nearly this condition that I found her on my arrival—presenting all the usual symptoms of a female laboring under an alarming hemorrhage. On making a vaginal examination, the vagina was found filled with coagula, and the os uteri dilated to the size of a half dollar, firm and unyielding, the placenta attached to the cervix on all sides, and, consequently, directly over the os. The vagina was at once filled with a tampon of old linen, and stimuli were freely administered. As soon as the syncope had in a measure subsided, and consciousness had returned, she began to complain of slight pain in the back, at the same time the uterus was observed to become firm and prominent, as if undergoing contraction. A full anodyne was given, and she was allowed to remain for four hours. The pains during this period having increased considerably, and the hemorrhage not having subsided, the patient's pulse 130 per minute and faltering, the respiration hurried but regular, I resolved upon an examination per vaginam, and, in the event of finding the

os uteri soft and dilatable, to entirely detach the placenta and seize the feet of the child and deliver. The patient, for this purpose, was removed so as to bring the hips as near to the edge of the bed as possible; a warm brandy sling with half an ounce of wine of ergot were administered, the tampon was removed, and finding all things favorable, the placenta was detached entirely, the hand carried into the uterus, the feet of the fœtus were seized and brought down; a few moments' rest were now allowed the patient, more brandy and wine of ergot were administered, and the delivery of a feeble but yet living child was then effected. The placenta immediately followed.

The patient being much exhausted, an anodyne and stimulating draught was administered, and warmth was applied to the body and inferior extremities. In two hours she had so much improved that she was left with the nurse, with instructions to diminish the stimuli gradually, and substitute animal broths instead. Six hours after I found my patient with a pulse of 116, and in a quiet slumber. Both mother and child continued to improve, and in two weeks after were well.

CASE 2.—On the 8th of May, 1847, was requested to visit Mrs. L——, No. 48 Hubert-street. She was near the eighth month of gestation with her fourth child. On arrival at the house found that, for near three weeks, she had been the subject of uterine hemorrhage, which had been at times profuse, and, during the last twelve hours, attended with slight paroxysmal pain in the back. I found her in bed somewhat exsanguinated, and with a pulse of 120 per minute. On making a vaginal examination the os uteri was but little dilated, scarcely sufficient to admit the finger, and so high up in the pelvis as to render the diagnosis extremely unsatisfactory. Believing the case to be one of threatened miscarriage, the result of too much physical labor, perfect rest was enjoined and an anodyne draught, containing fifty drops of tinct. opii, was administered. The next day the hemorrhage had nearly ceased, and she was ordered to take, morning, noon, and night, a powder, containing six grs. of pulv. ipecac. et opii, and three of acetate of lead until it had entirely subsided. On the 16th of May I was again called to see her in great haste. During the evening of the preceding day she had been seized with flood-

ing, which had continued to recur upon the slightest exertion. On examination found the os uteri dilated to the size of half a dollar, the vagina filled with coagula, and could distinctly feel the placenta covering the cervix uteri. As she was already much exhausted and the hemorrhage continuing, the vagina was immediately filled with a tampon of old linen, and a T bandage applied. Stimulants were now administered more freely, and warmth applied to the inferior extremities. In the course of an hour the pulse had diminished somewhat in frequency and increased in volume, and she began to complain of a sensation of weight and deadness in the pelvic region, and, at the same time, observed that she had not "felt life" since the occurrence of the hemorrhage, which took place the day previous. As the patient was somewhat inclined to sleep an anodyne was administered, from the effect of which she slept for two hours.

On awaking from her repose she complained of slight pain in the back, and soon a fit of coughing came on, and, following it, a sudden and profuse flow of blood per vaginam; the countenance became pale, the pulse disappeared and the respiration gasping. Placenta prævia being ascrtained, the tampon was readjusted (for it had, in the paroxysm of coughing, been expelled,) warm brandy and wine of ergot were administered, and repeated at short intervals. Under this mode of treatment the patient soon began to revive, and, in the course of two hours, a moderately full pulse and warm extremities were the result. The patient, too, complained of considerable pain in the back, and there were evident uterine contractions, at each recurrence of which there was some hemorrhage from the vagina, notwithstanding the large size of the tampon.

Having now satisfied myself that the ergot was acting, I resolved to remove the tampon, and provided the os uteri was sufficiently dilated, to proceed at once and deliver my patient. For this purpose she was carefully placed near the edge of the bed, a full draft of warm brandy and wine of ergot was administered, and, after a few moments, the tampon was removed, and the os uteri being considerably more dilated than at the previous examination, and easily dilatable, the placenta was separated from the left side of the cervix only, the membranes ruptured and the feet seized and brought down into the vagina;

more ergot was now administered, and the delivery was completed. The placenta was now detached from the right portion of the cervix uteri, and the hand, together with it, expelled by the uterine contraction. The child was dead. A considerable degree of hemorrhage, which reduced my patient to almost syncope, accompanied the delivery.

After the delivery, the patient was much exhausted; the pulse 140, respiration somewhat slow, and labored; warm brandy was administered, warmth applied to the extremities, and, in the course of half an hour, sixty drops of tinct. opii were given. In four hours after, the patient complained of slight headache—in all other respects she was quite comfortable; pulse 120, and moderately full. She was ordered to take panada, with small quantities of brandy, and, at bed-time, fifteen drops of Magendie's solution of morphine.

The next day she had slept but little, and complained of intense headache, pulse 110, and of moderate fulness; ordered ext. hyocyam. grs. xxiv. gm. camph. grs. viii. to be divided into eight pills, and one to be given every two hours until sleep is produced. The following evening she had slept six hours in all, at intervals of two hours each; expressed herself as feeling very comfortable. The same treatment was continued, and suffice it to say, that at the end of three weeks she was able to be about house.

CASE 3.—Was summoned hastily on the 20th of December, 1846, to visit Mrs. Freeman, No. 34 Watts-street, who was thought to be near the eighth month of gestation with her third child. On my arrival found the patient in a state of almost complete syncope; pulse scarcely perceptible, and so rapid as not to be computed; respiration slow and gasping; countenance palid; and, in a word, my patient almost ready to expire from loss of blood. An examination disclosed the presence of the placenta external to the vulva, and lying between the thighs. All hemorrhage had ceased. Brandy sling with wine of ergot, were immediately administered; warmth was steadily and persevering applied to the body and lower extremities. After an hour had elapsed, a very slow but gradual improvement commenced. Simultaneous with the development of the pulse, and a return of consciousness, slight

pain in the back was complained of, which, returning at stated intervals, gradually increased. On examination there was no return of hemorrhage, and the head of the child had already advanced as far as the inferior strait. The uterine contractions becoming more efficient, in the course of half an hour the delivery was completed. An anodyne with brandy milk punch was ordered at stated intervals, until sleep was produced. Twelve hours after she complained of some headache. A pill composed of three grains of extract of hyociamus, and two of gum camphor, was ordered every four hours. Animal broths and panada and wine pro re nata.

During the following six days the headache continued, more or less severe, but finally subsided; and in two weeks she had so far convalesced as to be able to, in part, superintend her household affairs. Her recovery was perfect in five weeks from delivery.

Remarks.—*Placenta Prævia.*—In the practice of midwifery, there does not occur probably a complication of labor much more hazardous to both mother and child than that of hemorrhage. By general consent placenta prævia is regarded as imminently dangerous to mother and child. Naegele observes that "there is no error in nature compared to this, for the very action which she uses to bring the child into the world, is that by which she destroys both it and its mother." In the management of these cases attention must be first paid to the condition of the patient, especially when she is in extreme exhaustion. When great exhaustion exists there is but little fear of farther hemorrhage until the condition of the patient is improved. If the hemorrhage has taken place at or near the eighth month, and has been severe, and the os uteri is not, or scarcely at all, dilated, the diagnosis is attended with much difficulty; but even here the necessity of the introduction of the tampon is rendered certain. After the patient's condition has so far improved as to be in a measure out of danger from the loss of blood that has already taken place, we may avert further immediate trouble by resorting to such measures as tend in general to prevent hemorrhage, until such times as uterine cantractions are regularly established, or a recurrence of hemorrhage calls for another examination. On instituting this, should the os uteri be found

dilated, or even dilatable, so as to admit the hand, the immediate and complete separation of the placenta, followed by rupture of the membranes, and turning of the child, is the only practice which will save the greatest number of mothers and children.

There can be but little doubt but that numerous children, and not a few mothers, have been sacrificed by delay in resorting to manual interference. That there is nothing gained in waiting after uterine contractions are efficient, is certain, as from the nature of the case there can be no hope of a natural termination, unless the pains be so violent as to force away the placenta before the head of the child. This being the case, the question at once arises, as to what mode of interference will prove most satisfactory in result to the child, as well as mother. In the history of the two cases reported, the first was treated by immediate and complete separation of the placenta, the other by separating a portion only, and leaving the remainder attached, until delivery of the child was accomplished. In the first there was scarcely any loss of blood, while in the second the loss was considerable—sufficient to exhaust the patient almost to a pulseless condition. So far as these two cases go, and I might add that of the third also, they favor the idea of the immediate and complete separation of the placenta, as best calculated to surpress the hemorrhage, and save the patient. This view I find is also favored by the results of statistics.

Spontaneous separation of the placenta, and its expulsion before delivery of the child, is by no means a rare occurrence. Professor Simpson* has recorded the results of 141 cases, in the majority of which the placenta was expelled safely by the natural efforts. In such cases, provided no hemorrhage exists, the case may be safely left to the natural efforts of the

* Vide *Monthly Journal of Medical Science*, 1845, p. 181–183.

uterus; there is nothing to be gained by hastening delivery, for the child being already dead, and the mother in no danger, all necessity for manual delivery is done away with.

This course, however, should not be followed if the fœtus be alive. In such a case, our duty does not stop short of a decided effort to preserve the life of the child. This can be best effected by detaching the placenta, perforating the membranes and delivering by the feet, allowing of as little delay as is consistent for the ease and safety of the mother. Such a proceeding, I am satisfied, will give the best possible chance of saving the child, while at the same time it diminishes the danger of the mother by preventing further loss of blood. In the language of a recent writer,* "the natural means, therefore, of checking unavoidable hemorrhage, is the complete separation of the placenta from its attachment to the cervix of the uterus; because by this means all the uterine arteries are broken off from the placenta, and the veins are closed by the dilatation of the uterus, which is necessary to effect the separation."

The following table, which I have enlarged from Dr. Churchill, will illustrate the frequency of placenta prævia:

Authors.	Whole No. of cases.	Cases of Placenta Prævia.
Dr. Jos. Clark,	14,234	20
Dr. Collins,	16,414	11
Dr. Ramsbotham,	35,743	40
Janson, of Ghent,	13,365	7
Mr. Earle,	4,320	22
Mr. Crosse,	1,394	2
Mr. C. Rose,	600	2
Mr. Bailey,	2,819	5
Dr. Toogood,	1,135	1
Dr. J. Lee,	850	4
Mr. Taylor,	1,037	2
Drs. McClintock and Hardy,	6,634	8
Dr. Churchill,	1,525	1
Mad. Boivin,	20,357	8
Dr. Merriman,	2,947	7
Dr. J. Reid,	3,350	3
Mr. Lever,	4,664	14

Thus it will be seen that in 131,288 cases, there occurred 157 cases of placenta prævia, or about 1 in 837 cases.

* Vide *Lectures on the Principles and Practice of Midwifery.* By E. W. Murphy, M. D. London: 1852; p. 333.

CASES OF RUPTURE OF THE UTERUS.

CASE 1.—On the 13th of April, 1846, I was called by a medical friend to assist in making a post-mortem examination of Mrs. Earle, at No. —— Laurens-street. She was about thirty-five years of age; and on the evening of the 11th instant was taken in labor at full term, with her seventh child. The labor progressed favorably for some four or five hours, when all of a sudden the pains ceased; the patient complained of being very chilly, and of great pain in the left iliac region. The cramp-like pain increased; the abdomen became more prominent; the patient's countenance indicative of extreme anguish; great prostration and sinking soon came on; the pulse became very rapid, small and fluttering; vomiting of a greenish *fluid* ensued; the respiration hurried and difficult; the abdomen tympanitic, hiccough, and extreme restlessness, with coldness of the surface and a clammy perspiration; and finally death supervened about twenty-four hours after labor pains had ceased. An attempt was made, as the head was low down into the pelvis, about five minutes after death, to deliver with the forceps, which proved unsuccessful. There was no recession of the head after the occurrence of the rupture.

Post-mortem examination eleven hours after death. An external inspection of the body disclosed the abdomen prominent, and the presence of the child easily defined through the abdominal parietes. On making an incision through the abdominal walls, the fœtus, covered with the membranes, was found within the peritoneal cavity. The head of the child alone lay in the pelvis, firmly impacted in the inferior strait, and it required no small amount of force to dislodge it. The placenta had also escaped from the cavity of the uterus. The rupture had occurred through the left portion of the neck of the uterus, near its union with the vagina. Its edges were irregular, and evidently softened from the presence of the inflammation, which had supervened after the accident. The cavity of the pelvis was filled with coagula. The abdomen with a large quantity of bloody-colored serum. The peritoneal covering of the intestines exibited extensive marks of inflammation,

—the intestines being glued together by fibrinous effusion. The peritoneal covering of the uterus was deeply injected, and covered with fibrinous patches. The ovaries were softened, from the presence of the occurring inflammation. In the right ovary was found a body about six lines in diameter, containing a small cavity; its walls were white, surrounded by a yellowish radiated portion. This body was evidently the corpus luteum of pregnancy.

Case 2.—At 3 o'clock, A. M., April 17th, 1845, I was summoned by Dr. P——, to No. 504 Pearl-street, to see Mrs. Healy, who, it was said, was in labor with her fifth child. On arriving at the house, the doctor informed me that she was taken in labor near dusk the preceding evening; that the labor progressed without any untoward event until an hour previous to my being summoned. At midnight the membranes ruptured, after which the pains becoming more severe, the head steadily advanced until about 2 o'clock, when she was suddenly seized with a violent cramp in the belly, and stated that something had given way. At this time the expulsive pains ceased, but the *cramp pain*, which she referred mainly to the region of the umbilicus, continued. Her countenance immediately became anxious and pale; pulse feeble and irregular; and respiration hurried. She complained of a sense of suffocation, and tossing her arms uttered low and short moans. Vomiting of a greenish fluid supervened, followed by collapse, and death a few moments before my entrance into the room. On instituting a vaginal examination, the head of the child lay low down almost in contact with the perineum. All arguments were unavailing in inducing the friends to allow of cæsarean section, although no signs of fœtal life could be discovered.

Autopsic examination made ten hours after death.—A foot and leg could be distinctly felt through the abdominal walls. An incision through the abdominal parietes, disclosed the fœtus in the peritoneal cavity, which also contained the placenta and a large amount of coagulated blood. The body of the uterus was found contracted, and on the right side of the neck, near its union with the vagina, there existed a

large ragged rupture. The parietes of the uterus near the rupture were softened, and required no great force to produce separation. The right ovary contained the corpus luteum. The left ovary was transformed into a cyst, that contained about eight ounces of albuminous fluid.

REMARKS.—*Rupture of the Uterus* is not, as one would naturally infer from these cases, necessarily a fatal accident to the mother. Numerous cases have been reported from time to time in periodical medical literature, which prove the truth of this statement. Two cases of this kind are reported in the new Series of this Journal, vol. v., p. 331; and vol. vii., p. 328; the first by Dr. Hartt, and the second by Dr. Maxwell, both of this city. There is also a successful case reported in *The Annalist*, vol. i., p. 37, by Dr. Guernsey, of this city. Dr. Trask* has collected the outlines of three hundred and three cases of this accident; of this number one hundred and fifty-four were delivered by artificial means, fifty seven of which recovered, and ninety-seven died; of eighty-nine abandoned undelivered, twenty-four recovered, and sixty-five died; and of thirty-one delivered by natural efforts, eleven recovered and twenty died.

The frequency of rupture of the uterus, may be seen from the following table, compiled from authorities within our reach:

Authors.	Whole No Cases.	Cases of Ruptured Uterus.
Dr. Collins,	16,414	34
Dr. Merriman,	2,947	1
Dr. Joseph Clarke,	10,387	8
Janson, of Ghent,	13,365	1
Dr. Ramsbotham,	48,719	11
Dr. Toogood,	1,135	2
Dr. M'Keever,	8,600	20
M. Pacaud,	4,180	2
Dr. Wagstaff,	1,200	3
Dr. Reid,	3,250	1
Dr. Lever,	4,664	3
Drs. McClintock and Hardy,	6,634	9

Thus we find that in 121,495 cases, rupture of the uterus occurred 95 times, or a little over 1 in 1278 cases.

* *American Journal of the Medical Sciences*, Vol. XV., N. S., p. 104–383.

Those *symptoms* which may be considered when viewed collectively as diagnostic of rupture of the uterus, are usually well marked, and may be noticed as follows:—1st. The occurrence of a severe and sudden pain, unlike usual labor pain, attended on rare occasions with audible noise, and a sensation of something giving way in the abdomen. 2d. Vomiting followed by chills, extreme debility and prostration of strength, and on rare occasions by sudden collapse and death. 3. Sudden cessation of labor pains—though this does not by any means invariably succeed rupture of the uterus, followed frequently by a discharge of blood from the vagina, and soon after by a gradual cessation of the auscultory signs of beating of the fœtal heart. 4th. Recession of the presenting part, followed frequently by the limbs and body of the fœtus becoming discernible through the abdominal parietes, and the cessation of the accustomed movements of the child. 5th. Continued excruciating cramp-like pain, followed soon by vomiting of a coffee-ground colored or black matter; pale and ghastly countenance, surface cold and bedewed with a clammy perspiration; a feeble, small and fluttering pulse; and in a few cases by a certain amount of reaction. 6th. A tumid and distended abdomen, extremely painful, great restlessness, and occasional delirium, which after a time is succeeded by difficult respiration, collapse, and finally death.

In this enumeration of symptoms, it has not been our intention to mention all those which *may* arise in cases of rupture of the uterus, but only those which generally become manifested on or immediately after the occurrence of this accident. That there may be absent in certain cases all symptoms of rupture of the uterus, and that in others symptoms may vary, according to the location and extent of the rent, is certain; and hence it may be easily and correctly inferred, that no one symptom is always diagnostic of its occurrence, and that it is only by taking the whole assemblage of symptoms together, into account, that we can arrive at a correct conclusion, as to the existence of the accident in a given case.

The rule of action, in cases of rupture of the uterus, which is confirmed by the results of statistics, is that of accomplishing delivery as soon after the rupture has occurred, as the

diagnosis is positive or certain. Nothing is gained by delay; on the contrary, the danger is materially augmented. As to the mode of delivery, that should depend upon the circumstances of the case. In the first case reported, I am satisfied that the impaction of the head was so great, that no attempt to deliver by the forceps could possibly have proven successful; for it will be remembered, there was no recession of the head after the occurrence of the rupture; neither was there any after death; and, at the *post-mortem* examination, it required a good degree of effort to withdraw the head from the pelvis. In this case, perforation of the head of the child was the only operation which would best offer any hopes of a successful issue of the case. In the second case, the early application of the forceps might have been resorted to, immediately after the accident, with some probability of success. Had I seen this case sufficiently early, an attempt, at least, would have been made at delivery.

In the event of the child having escaped entirely from the cavity of the uterus into that of the peritoneum, and the uterus contracting, then we have the grave question of gastrotomy suggesting itself—and this, too, for the obvious reason, that the rent becomes contracted in proportion as the uterus contracts, and "the child can never be returned through a contracted rent, having passed through it while the uterus was yet undiminished in size." Of the success of this operation Dr. Trask's statistics inform us, that in the sixteen cases which he has collected, in which the child escaped from the uterus into the cavity of the peritoneum, twelve were saved and four lost. Now if we turn to the result of like cases, treated by the plan recommended by Hunter and Denman, *i. e.*, by leaving them to nature, we find, that in thirty-five cases twenty-three died, and twelve were saved. Thus, it will be seen, that the greatest possible chance in our power, is offered in this kind of cases, by the early performance of gastrotomy. On this subject, one of the greatest of living American authorities thus expresses himself:—"I am firmly convinced, that should I be called this day to the conduct of such a case, I should feel bound by my conscience to recommend a delivery by a gastrotomy operation * * * * * * * I express

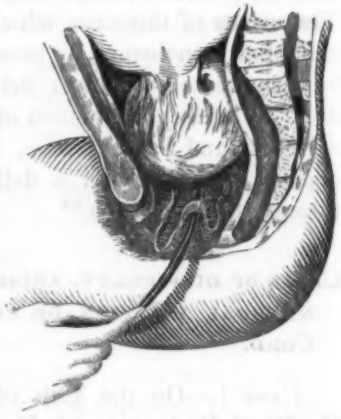
this opinion here upon a most vivid recollection of the distress which I occasioned to an unfortunate woman, who, in consequence of a laceration affecting the posterior wall of the vagina, and the vaginal cervix, drove her child into the cavity of the belly. As the head could be touched, and as the child was dead—nearly twenty hours having elapsed since its escape from the uterus—I made use of the perforator, and then taking hold of it through the opening, with my embryotomy forceps, I used all the force which it was possible for me to employ, in drawing it away through the natural passages. The unfortunate woman, who bore the rude operation with the greatest constancy and courage, lingered many hours after its close. The events of this case, which, peradventure, might have had a happier conclusion, by means of the gastrotomy operation, have impressed me, more than a thousand arguments could do, with a deep conviction of the cruelty of such a mode of delivery; and I repeat here, in the most distinct terms, my decided preference for a delivery by means of an incision through the linea alba."*

CASES OF DIFFICULTY, ARISING FROM DEVIATIONS IN THE NATURAL POSITION OR CONDITION OF THE UMBILICAL CORD.

CASE 1.—On the 12th of January, 1846, was called by Dr. W. C. Parker, to visit Mrs. ——, 29 Centre-street, in labor with her third child. On my arrival, learnt that she had been in labor about four hours, when Dr. P. was called to attend her. On instituting an examination, he found that the membranes had ruptured, and that the head of the child lay in the pelvic excavation, and a loop, four inches in length, of the umbilical cord, lay external to the vulva. The pulsation of the cord could be detected but faintly. The uterine contractions were but moderate. In this state of affairs, our only plan was to push back the head of the child as gently as possible, and then return the cord into the uterine cavity. This was done, but it immediately became prolapsed again. Before returning it

* *Obstetrics, the Science and the Art;* By C. D MEIGS, M. D., 1852, p 520.

a second time, the following course was resorted to:—An ordinary gum elastic catheter, of moderately large size, was procured. A piece of linen tape, about four lines in width and two feet in length, was placed around the centre of the prolapsed portion, and then the ends were, by means of a piece of common wire, drawn through the eye of the catheter, and so through the whole length of its central cavity. The ends of the index and middle fingers, grasping the cord at the point where the tape surrounded it, were now made use of, to return the prolapsed portion within the cavity of the uterus; and then, by means of the catheter, the cord was pushed high up within its cavity. This was easily accomplished, and the cord was thus very readily retained *in situ*. Two drachms of wine of ergot were now administered; and soon after, uterine contractions becoming more efficient, the head descended, so as to engage with the inferior strait. In the course of an hour, the complete delivery of a living child was effected. Both mother and child continued to do well.



CASE 2.—On the 16th of October, 1850, was called to attend Mrs. S——, 178 Franklin-street, in confinement, at full term with her first child. She had been in moderate labor about sixteen hours. On instituting a vaginal examination, the os uteri was found but little dilated, and the head high up, scarcely engaged with the superior strait. As she was comparatively comfortable and in good spirits, there was nothing ordered to be done. Twelve hours after, the head had passed through the os uteri, and during the presence of pain would partially engage with the inferior strait, but recede again during its absence. The membranes were now ruptured, and the uterine contractions became more expulsive. Half an hour after the patient was suddenly seized, immediately after a pain, with vomiting and chills, followed by a discharge of a considerable

quantity of blood per vaginum. A rapid pulse, and hurried respiration, and cold surface. Stimulants combined with wine of ergot, were administered, and external warmth was resorted to. In the course of half an hour moderate reaction came on, the pains returned, the head ceased to recede during the interval of pain, and in about one hour after my patient was delivered of a dead child. The placenta, together with a large amount of coagula, followed by the same pain. The child was completely exsanguinated, and bore the appearance of having died from loss of blood. *The umbilical cord was six and a half inches in length*, from its insertion into the placenta to the umbilica of the child. The uterine surface of the placenta was covered with coagula.

Case 3.—October 9th, 1851. Was called to attend Mrs. C——, No. 502 Greenwich-street, who was in labor with her sixth child, at or near the eighth month of gestation. On examination, the membranes were ruptured, and the head of the child already engaged with the inferior strait. There was oozing from the vagina an offensive fluid in moderate quantity. On questioning my patient, I found that she had not felt any movement of the child since she supposed herself to be near six and a half months pregnant. That there had existed since about that time a sensation of coldness and weight in the lower portion of the abdomen, and the breasts had diminished in size and firmness. From these circumstances she had come to the conclusion that her child was dead. She stated that she knew of no cause to give rise to such a result. In half an hour after my arrival, she was delivered of a dead and slightly decomposed child. The placenta was with considerable difficulty removed, by the introduction of the hand. On making a careful inspection of the placenta and umbilical cord, the latter was found, as will be seen in the accompanying illustration, *tied in a firm knot;* sufficiently tight to completely obstruct all circulation through it, as was evinced by the fact that an injection could not be made to pass through it. The convalescence of Mrs. C. was, as might be expected, extremely slow.

CASE 4.—For the notes of the following interesting case, I am indebted to Dr. Fleet, of this city, in whose practice it occurred. Mrs. G——, the mother of three children, was seized with symptoms indicative of miscarriage, in August, 1851. She believed herself to be about six months advanced in gestation. A course of treatment adapted to the necessities of the case was resorted to, but without having the desired effect. On the following day, about twenty-four hours after the first visit, on attempting a vaginal examination, the breech was found presenting, and as it was low down, an attempt was made te deliver the right leg. Failing in this, owing to some unaccountable obstruction, the left leg was delivered, and then, with some little delay, the right was brought down, so as to ascertain that the cord was tightly fastened to it just above the ankle. Traction was made upon the funis, and the finger passed between the cord and the leg, so as to lessen the tension sufficient to extricate the leg from the coil. In doing so, it was found that the funis was somewhat adherent to the leg, around which it was turned. On extricating the leg from the funis, the delivery of the child was easily effected, and the cord was found to be around the neck also.

On inspection after delivery, the leg, at the point where the cord passed around it, was found almost amputated; in fact entirely so but the bones—the tibia and fibula only remaining. The annexed cut illustrates the character of the amputation, and the extent to which nature had carried it.

REMARKS.—*Prolapsus of the funis* is a complication of natural labor of not very frequent occurrence; but one of great danger to the child. So much so is this the case, that we find that the mortality is greater in this than in any other order of practicable labor. As illustrating its frequency and mortality, the following are the most complete tables which we possess.*

* Enlarged and revised from *Theory and Practice of Midwifery*. By F. CHURCHILL, M. D., Philadelphia Edit., 1851, p. 410.

1. *Frequency of Occurrence.*

BRITISH PRACTICE.

Authors.	Total No. of Cases.	Prolapse of Cord.
Dr. Bland,	1,897	1
Dr. Joseph Clarke,	10,387	66
Dr. Merriman,	2,947	8
Dr. Granville,	640	1
Edinb. Lying-in Hospital,	2,452	3
Dr. Collins,	16,414	97
Dr. Cusack,	398	5
Dr. Maunsell,	839	2
Mr. Gregory,	691	7
Dr. Beatty,	1,182	6
Mr. Lever,	4,666	6
Dr. Reid,	3,250	16
Mr. French,	89	1
Dr. Churchill,	1,525	7
Drs. McClintock & Hardy,	6,634	37
Mr. Bailey,	2,860	9
Mr. Copeman,	1,037	5

FRENCH PRACTICE.

Authors.	Total No. of Cases.	Prolapse of Cord.
M. Baudelocque,	17,499	41
Mad. Boivin,	20,517	38
Mad. Lachapelle,	15,652	26
M. Mazzoni,	452	18

GERMAN PRACTICE.

Authors.	Total No. of Cases.	Prolapse of Cord.
M. Richter,	624	4
A. E. v Siebold,	492	2
Dr. Voigtel,	29	1
Dr. Jansen,	13,369	86

Thus in British practice it occurred 277 times in 57,908 cases, or about 1 in 209; in French practice, 123 times in 54,529, or about 1 in 443; and in German practice, 93 times in 14,514 cases, or about 1 in 156. In the total number, 126,542 cases, we have the accident occurring 492 times, or about 1 in a fraction over 257 cases.

2. *Mortality of the Accident.*

Authors.	Case of Prolapse.	Child'n lost.	Cord replaced.	Deliv'd naturally.	Deliv'd by Version	Deliv'd by Forceps
Mr. Gifford,	21	17	2		15	5
Dr. Smellie,	6	2			5	
Mr. Perfect,	4	3			4.	
Dr. Joseph Clarke,	66	49				
Dr. Merriman,	8	4				
Dr. Ramsbotham,	1	1			1	
Dr. Collins,	97	70				
Dr. Cusack,	5	5				
Mr. Gregory,	7	4				
Dr. Beatty,	6	4				
Mr. Lever,	6	2				
Dr. Churchill,	7	5				
Drs. McClintock and Hardy	37	25	5	6		
Mad. Boivin,	38	9			25	13
Mad. Lachapelle,	26	7	2	1	10	13
Dr. Voigtel,	1	11			1	
Dr. Jansen,	86	34			46	6

Thus it will be seen, that out of 392 cases of prolapse of the funis, 245 children were lost; or, a mortality of nearly 2 cases out of 3. This table of the mortality illustrates also the success of the different modes of treatment.

Short umbilical cord.—It is an occurrence of extreme infrequency to meet with a funis under six inches. At least it is, if I may trust to the results of statistics, and the declarations of numerous observers. Dr. Churchill, in a very learned and elaborate paper, says that "extremely short cords must be very rare, since, out of 500 cases, none were under twelve inches;" and, again, "Dr. Davis * says that a cord of two inches long has been met with; Guillemeau, one of two inches and a half; Montault, one of four inches; Meissner, one of five inches; Mauriceau, Baudelocque, and Morlanne, one of six inches; Haighton, one of seven inches; Dr. Klugè, one of eight inches and a half; and Dr. Montgomery, two of eight or nine inches." Dr. Hamilton † has also seen two cords in which the "length could not have exceeded six inches;" and Dr. Storer ‡ has reported one of four and a half inches. On referring to the different authorities within my reach, I find no mention made of the occurrence of internal hemorrhage arising from partial or complete separation of the placenta from a short funis. That this was the case in the second case reported, under this head, there cannot be even the shadow of a doubt. Neither can there be a doubt that, in the partial separation of the placenta, in these cases, like that of all others, there exists the greatest danger. A danger which can only be averted by complete separation taking place, or the practitioner resorting to the forceps for the purpose of completing the delivery.

Knots on the funis are by no means of rare occurrence. Not so, however, with the danger that possibly may result from them in certain cases. In the third case reported under this head, there can be scarcely a doubt but that the knot found on the cord was the cause of the death of the fœtus. The knot, it will be remembered, was firm, and would not ad-

* *Researches on Operative Midwifery*, Dublin, 1841, p. 265, 263.

† *Practical Observations*, Part ii., p. 69.

‡ *New-York Jour. Med. & the Collateral Sciences, New Series*, Vol. VI., p. 140.

mit of an injection to pass through the arteries or vein. There is an important medico-legal question hanging upon the possibility of this occurrence. In cases of children found dead under suspicious circumstances, with knotted cords, it has been supposed that they might have been formed after death; and it is a matter of some consequence to ascertain whether they could produce such serious effects.* The case reported proves to my mind, conclusively, that a knot in the funis can produce death of the fœtus in utero, and abortion follow as the consequence. While recording my own convictions on this point, a strong example recurs to my mind, in the case reported and illustrated by Dr. Jameson† of Baltimore, where the body of the fœtus was caught around the abdomen, and nearly severed, in a knot tied in the funis, thus causing the death of the fœtus and abortion. In this case, to use Dr. J.'s own language, "the whole appearance was such as most clearly evinced that it had, long prior to its death, become entangled in its umbilical cord, that the head must in some way have slipped through a noose, occasioned, probably, by an unusual length of the cord, and that it had pined away gradually, as the knot became closer, and thus finally destroyed it." The adjoining is a copy of the illustration of the case to which Dr. J. refers.

Spontaneous amputation of the limbs in utero is a condition which has more or less attracted the attention of careful observers. In 1832 Dr. Montgomery, of Dublin, published, in the *Dublin Journal of Medical Science*, two papers on the subject, in which he first explained, in part, the real nature of the accident, and there is reason to believe that he has done more than any other writer to direct attention to a right knowledge of this interesting and curious phenomena. In

* *Churchill's Operative Midwifery*, p. 277.

† *American Medical Recorder*, Vol. VI., p. 292. 1822.

1837 this paper was revised and enlarged,* and in it may be found several excellent illustrations of this accident. Mr. Watkinson, in the 54th volume of the *London Medical and Physical Journal*, has reported a case in which the left foot, at nearly the same point of the one last reported, was entirely amputated in utero; and in the xviiith vol. of the *American Journal of the Medical Sciences*, Dr. Fitch, of New Boston, N. H., has reported a case in which the right foot of a fœtus was discharged per vaginam, fifteen days previous to the delivery of the child. On the birth of the child the right foot was wanting; the stump "terminated abruptly, and over the end the skin had contracted uniformly from every side towards the centre, without, however, forming a complete cicatrix." The foot was, when discharged, in a perfect state of preservation. Dr. A. H. Buchanan,† of Tenn., has reported a case, and exhibited the specimen to the Medical Society of Tennessee, in which abortion took place between the third and fourth months of gestation, and on inspecting the fœtus the funis was found twice twisted around its neck, and once looped around the right thigh. From the condition in which the fœtus was found, says Dr. B., "it is evident that any efforts made by the child to extend the thigh tightened the cord about the neck, and also about the thigh, as well as dragged upon its umbilical extremity and obstructed the circulation. * * * * It is very fair to conclude that the fœtus, thus situated, came to its death either from the compression of its throat by the cord, or from its obstructed circulation, or from both, and that the abortion was the consequence of its death. * * * * * It may be seen by any present that, at the point of compression (where the cord twists around the thigh), only the integuments intervened between the cord and the bone, all the parts having disappeared; but the limb below the ligature appears as fully developed as its fellow, and the integuments immediately under the ligature appear sound."

A case, in most respects a complete anologue of Case 4,

* *Cyclopædia of Anatomy and Physiology, Vol. 2, p. 324, and an Exposition of the Signs and Symptoms of Pregnancy, &c.* By W. F. MONTGOMERY, M. D. London, 1837, p. 321.

† *American Journal of the Medical Sciences*, 1839. Vol. XXIV., p. 522.

above reported, is recorded in *Siebold's Journal*, vol. xvi., No. 2. It was that of a fœtus about three months old, which was expelled with the umbilical cord wound round the right leg, above the ankle, and forming a knot. "The development of the limb was thus completely prevented, and the leg seemed worn away down to the bones."

That the character of the change effected in this accident is that of arrest of development at the point where the cord surrounds the limb, is morally certain. The funis, so to speak, has repeatedly been caught in the act of effecting the amputation. Thus we see, in the case of Dr. Buchanan, the *integuments* and *bones* remained. In the case of the specimen here illustrated, the bones only remain to be severed to make the amputation complete; while, in Mr. Watkinson's and Dr. Fitch's cases, the amputation was complete. In all of these cases, the part of the limb amputated or nearly so, was found to be in a full state of development, plump and undecomposed. An interesting fact arises here, viz., that which relates to the nourishment of the part, after the integuments and vascular connections of the muscular parts have been cut off down to the bone. Here, evidently, the nourishment of the part nearly amputated must be carried on by, at first, the small capillary arteries of the periosteum and the arteries of the medullary cavity; and after the process has advanced so far as to obstruct the capillary arteries of the periosteum, then by those of the medullary cavity alone. Thus it is that we see the limb retain its plumpness and integrity up to the very moment even of its amputation. The preservation of the parts in utero, for weeks after amputation, must depend upon the same causes that preserve, in many cases, the fœtus in this cavity for months after its death has taken place.

But it is not alone by the umbilical cord that spontaneous amputation in utero is effected. For Dr. Montgomery, previous to 1835, was of the opinion that it was mainly, if not entirely, due to cords or threads of organized lymph effused by inflammatory action, and constituting the parts at the point amputated. All the cases cited by him in his first essays, were instances of amputation effected through this variety of ligature. And the whole argument of Dr., now Prof. Simpson,

in his paper* is directed to the establishment and explanation of this point. In Dr. Montgomery's last paper he states that "while committing these observations to writing, to be read at an evening meeting of the College of Physicians on the 8th of August, 1835, he received an interesting specimen from Dr. Adams, in which the coiling of the umbilical cord round the left leg of the fœtus at three months, had deeply indented it." He also cites one more instance of the same effect produced just above the knee, which occurred in his own practice. These, together with a case cited by him from Morgagni,† are all the cases which he refers to as illustrating the process of spontaneous amputation by the funis umbilicalis. In speaking of Dr. Simpson's paper, he says, "I am happy to find that he, also, assents to, and indeed strongly confirms my view, both as to the agent which produces the change, and its consisting of organized lymph, such as is usually elaborated under the influence of inflammatory action, from which it is well known that several varieties of fœtal deformities arise;‡ and it is a matter of every day observation, how completely lymph, so effused, will be converted into distinct, firm threads, uniting opposite serous surfaces, especially those which move freely on each other, as the pleuræ and the peritoneal coverings of the abdominal viscera." Thus we see that there can be but little doubt that the efficient cause of spontaneous amputation is believed by Drs. Montgomery and Simpson, to be cords or threads formed out of "organized lymph, such as is usually elaborated under the influence of inflammatory action."

Dr. Wm. C. Roberts of this city, has detailed the leading facts of various writers on this subject, and has done much to call the attention of the profession of this country to this

---

* *Cases illustrative of the Spontaneous Amputation of the Limbs of the Fœtus in Utero, with Remarks.* By JAMES Y. SIMPSON, M. D., &c.—*Dublin Medical Journal of Science*, Vol. X. p. 220; 1836.

† *The Seats and Causes of Diseases.* Epist. xlviii. Art. 53, Vol. II. p. 747, of Alexander's Translation.

‡ See Geoffrey St. Hilaire's Investigations, in his work on "Monstrosités Humaines;" Meekel's Handbuch der Pathologian Anatomie, Bd. ii. s. 138; and a paper onthe Diseases of the Placenta, by Dr. Simpson, in the *Edin. Med. and Surg. Jour.*, Vol. XLV. p. 305, et seq.

curious and interesting phenomenon. To his elaborate paper* the reader is referred for much that is valuable on intra-uterine pathology.

From all we have read and seen on the subject, we venture the opinion, that ties or turns of the umbilical cord will be found to have more to do with spontaneous amputation in utero, than all other varieties of causes put together; and if we are not greatly mistaken in the matter, time will disclose the fact, that many of the deformities of the fœtus are the direct result of changes produced through its instrumentality. But our space will not allow us to follow this interesting subject farther on the present occasion; we will, therefore, close by subjoining the following conclusions, which may be said to embrace our knowledge of this subject to the present time.

1st. Intra-uterine or spontaneous amputation is of more frequent occurrence than systematic treatises on obstetric medicine and pathology would lead us to infer.

2d. It is the direct result of physical causes, which produce their effects by arrest of development commencing at an early period of intra-uterine life, rather than by absorption from pressure near to the term of utero-gestation.

3d. It is directly effected, 1st, through the agency of the funis umbilicalis of the child being coiled, tied, or looped around the part at the point amputated, which is most frequent; 2d, through the agency of bands, cord, or threads of "organized lymph effused by inflammatory action, constricting the part at the point amputated," which is less frequent.

4th. That the normal development of a part, beyond the point constricted, is but rarely arrested; and that usually, and in most cases, it is effected as readily as if no constriction existed.

5th. That the limbs of the fœtus are the parts most frequently liable to the accident, but that the body, and even the neck, are not altogether exempt from liability.

6th. That the death of the fœtus in utero may result from this cause, and abortion follow as a consequence; and

---

* *On Diseases of the Fœtus; a contribution towards a better acquaintance with Intra-uterine Pathology.* By Wm. C. Roberts, M. D.—*American Journal of the Medical Sciences*, Vol. XXVI. p. 369; 1839.

7th. That the diagnosis of this accident is not even problematical in the present state of our knowledge, and that therefore it cannot, at present, be the subject of preventive measures.

ART. III.—*Medical Notes and Observations.* By an EX-HOUSE SURGEON, No. 2.

On Sloughing and Regeneration of the Scrotum: and on the Process of Cicatrization.

CLOSELY connected with syphilis and its consequences, on which we dwelt at some length in our last communication, is gangrene of the scrotum, which sometimes succeeds a sloughing chancre on the penis, that has been improperly or inefficiently treated, but also occurs from various other causes, and so frequently in hospital practice, as to render its history and appropriate treatment of the greatest moment to the surgeon. It most commonly results from rupture of the urethra, at its membraneous portion, and consequent infiltration of urine into the cellular tissue of the perineum and scrotum; all this being generally one of the remote sequelæ of gonorrhœa; also from erysipelas, which, when it attacks this part, not unfrequently produces extensive sloughing, from the escape of an injection into its cellular tissue, which was intended for the cavity of the tunica vaginalis, in the radical cure of hydrocele: from the debilitating effects of long-continued fevers, as the typhus; from the effects of intense cold; and from the extension of common inflammation, from a wound of the penis, and perhaps from other causes.*

The first three causes, syphilis, gonorrhœa, and erysipelas, furnish by far the most cases of gangrene of the scrotum; but it is not uncommon to meet with it during the latter stages of typhus, while cases resulting from the three remaining causes must be rare, though I have seen instances of all which have been mentioned, except that caused by frostbite, of which one

---

* Pott, in his surgical works, Vol. II., p. 239, mentions three cases, in which sloughing of the whole scrotum resulted from extensive incisions made for the relief of distention, caused by anasarca of the part.

instance is recorded by Sir Astley Cooper, and one by Mr. Curling, in his Treatise on the Testis. The injection which caused the sloughing in the case above alluded to was a solution of sulphate of zinc, 3 i. Oj.; but a small quantity of which escaped into the cellular tissue; the sloughing was, however, extensive and deep, destroying nearly half the scrotum, and denuding the testicles. The constitutional irritation in this case was comparatively inconsiderable, and a radical cure of the hydrocele was effected. The case resulting from the extension of inflammation from a wound of the penis, was a very lamentable one, the wound being intentional, and for the purpose of removing a congenital phymosis. The man died.

Sloughing of the scrotum, from the infiltration of urine, and from erysipelas, can very frequently be prevented, by active and prompt surgical interference; this alone will avert the danger, when it is seriously threatened. Yet this relief, we are inclined to think, is seldom afforded to the full extent, except in hospital practice. The incisions require to be so extensive and so deep, that few physicians in private practice will venture to take the responsibility of making them, or of making them sufficiently early; to be effective, they must be made at once. There is not the slightest danger in making incisions in the swollen scrotum, of any extent, and to any depth, if the patient's power is not too much reduced; * they may be carried between the testicles to the urethra itself, and may even lay bare the testicles, on either side, if the tension of the part requires it; there is no large vessel to be injured, and no difficulty in suppressing the hemorrhage, if it be too abundant; pressure with lint stuffed into the cuts, generally sufficing, perhaps with the ligature of one or two small arteries in the cutaneous tissue.

Gangrene will, however, sometimes supervene, in spite of

* This may seem to conflict with the caution inculcated by Mr. Pott, with regard to the danger of making incisions in the scrotum, distended by common anasarca; in this case, punctures answer every purpose, as depletion is not needed, and the serum will drain as well from punctures as incisions. But in erysipelas and infiltration, the danger of sloughing is imminent, and punctures would only aggravate the difficulty, by increasing the irritation.

the best treatment, and then its management, and that of the subsequent devastation of tissue, becomes the important point. Sloughing of the entire scrotum, though a serious calamity, is, provided it be properly treated, by no means so dangerous to life, according to our experience, as is generally supposed, except when occurring from the extension of sloughing phagedena.

In this case, the system is so prostrated, by the poisonous nature of the disease, that a fatal result may generally be anticipated. Fortunate it is that sloughing of the scrotum from this cause is rare, if the treatment has been at all appropriate to the nature of the chancre. The treatment of gangrene of the scrotum is fortunately very plain, only it must be prompt and vigorous. As soon as the sloughing has become general, the powers of life begin to give way rapidly, and a disagreeable train of nervous symptoms set in. The indications, of course, are to quiet the nervous system by anodynes and antispasmodics, as opium and camphor, and to support the strength by stimulants, tonics, and full nourishing diet, as far as the stomach will bear it. These remedies require to be commenced early and given freely. But it is to the after consequences of the disease that we wish particularly to call attention. When the sloughs have all cleared away, we not unfrequently find the entire scrotum gone, except, perhaps, now and then, a small fragment at either side, and the testicles hanging pendulous by their cords, and entirely denuded; perhaps the tunica vaginalis also either wholly or partially destroyed. This condition presents an alarming picture to a practitioner who has not had the fortune to have met with a previous case, to direct him in his treatment. What is to be done? I will state what a practitioner of eminence in his section, a man of acknowledged ability, and president of a State Medical Society, actually did in such a case. Not finding any directions in the books touching the point, and not supposing it possible that such an extensive devastation of tissue could ever be replaced, by the powers of art or nature, *he removed both testicles.* Of this I was informed by a physician from a different section of the State; who told me that he had himself, about the same time, a similar case, and was equally at fault to know

how to manage it, as he could find no precedent in his books, and naturally supposed that the case was one of great rarity. However, he concluded to let nature alone, and watch her operations. He merely supported the parts by a suspensory bandage of oiled silk, covering them with cloths saturated with cream. He was much delighted, in course of time, to find a perfect cicatrix, and new scrotum formed, and the parts decently covered. These two cases, and a knowledge of the fact, that notice is taken of this serious and troublesome complication of disease in but few of the works on surgery, and no practical directions for its management given, have induced me to give it a somewhat extended notice, at the risk of being considered tedious, by those readers who may happen to be better acquainted with its history than the mass of practising physicians.

Curling, in his work on the testis, gives the most full account of sloughing of the scrotum and its consequences. Acton devotes three lines to it, in his complete treatise on venereal diseases; and Pott casually mentions, that regeneration of the scrotum took place in one of the cases which he introduces in his "Treatise on the Hydrocele," to illustrate the danger of incisions into the scrotum, for œdema of that organ.

The *local* treatment of the affection is simple. An antisceptic and stimulating or anodyne cataplasm, according to the condition of the parts, and a suspensory bandage, giving them moderate support until the sloughs separate; afterward, the application of a stimulating ointment or lotion, with the suspensory bandage. It is wonderful and beautiful to see the rapidity with which the process of cicatrization proceeds, when it has once fairly commenced.

While on the subject of *cicatrization*, and the reparative power of the system, it may not be amiss to notice a few cases, in which nature, thwarted by their obstinacy, resorts to extraordinary efforts, at variance with her usual course, rather than be foiled. It is a very general opinion among physicians, and I have been repeatedly assured by surgeons who have had hundreds of ulcers under their treatment, that *they can only heal from the circumference,*—that new skin, as the cicatrix is

often incorrectly called, can only be reproduced by the old.* But I have the evidences of my own senses to oppose to this general belief. For I have seen, in the course of my hospital service, a number of unquestionable cases, in which the process of healing proceeded as well from the centre as the circumference, and I have repeatedly called others to witness the same fact. It is remarkable that this unusual occurrence has taken place only in very indolent ulcers, or in ulcers where it seemed almost impossible that a cicatrix could be produced without this unusual aid. I will briefly allude to some of these cases, without going into formal details. The first which attracted my attention, and that of the other surgical attendants, was *an excavated, secondary ulcer*, on the dorsal aspect of the fore-arm, as large as a Mexican dollar, in a patient occupying ward 15 (the present ward 9) of the main building of the New-York Hospital. This ulcer had, for weeks, resisted a variety of treatment, both constitutional and local; when, at a time that we were beginning to despair of being able to do any thing with it, cicatrization commenced simultaneously at the centre and circumference, and proceeded without interruption; the cicatrix from the centre finally meeting that from the circumference. This was in 1848. In the same ward was another patient, with a *venereal ulcer* in the groin, of the *herpetic* character,—the most difficult of all to heal, especially when occurring in this situation. With this the patient had been confined to bed for weeks, and had exhausted every imaginable application, as well as the patience of his medical attendants, when the sore finally commenced cicatrizing, and the healing proceeded from both the surface and the circumference of the ulcer. The *third* case occurred in ward 9 of the marine department;—an ulcer six inches in length by three or four in breadth, situated on the upper and outer aspect of the thigh, the result of an extensive burn, and surrounded

* "But do ulcers and wounds never heal from their centre? This is a topic concerning which pathologists have expressed different sentiments—some maintaining the affirmative, others the negative side of the question. From an inspection of numerous cases, I am convinced that the process of cicatrization takes place in one way only, namely, in that which I have described (from the circumference)."—*Gross's Pathol. Anat.*

by a dense cicatrix, the consequence of the healing which had already taken place, but which seemed to be now entirely arrested from the utter inability of the surrounding parts to contract further. Various and persevering attempts were made to heal the remaining sore for two months or more, by strapping, bandaging, confining the limb to the inclined plane, stimulants, caustics, &c., &c., without effect,—when, all at once, under the application of some mildly-stimulating lotion, it commenced cicatrizing gradually, as well from one or two points of its surface remote from the circumference, as from the latter itself; and, in a few weeks, if we remember aright, it had entirely healed. In this case, the patient himself first drew attention to the fact, that "new skin," as he called it, was forming at the centre of the ulcer.

A *fourth* case occurred in No. 12, main building (now No. 5) in an ulcer, resulting from an extensive venereal bubo in the groin. A *fifth* in No. 7 (now No. 3), and a very remarkable one. A patient, named Healy, was operated upon by Dr. Post of the hospital, for necrosis of the tibia; a large portion of the bone was removed by the chisel and saw. The case was doing well, when, under the influence of an epidemic gangrene, which was at the time scattering destruction among the surgical wards, the whole integument of the anterior and a portion of the lateral surfaces of the leg, with all the cicatrix that had formed, sloughed, and was cast off, leaving behind an immense unhealthy ulcer, which seemed but little disposed to heal; and when cicatrization had been partially established, the sloughing process again swept away all that had been gained; this was repeated, to some extent, a third time. When the patient had been in the hospital near a year, he had still a large ulcer over the tibia, where the bone had been removed, and this was surrounded by a dense, shining cicatrix. Finally, it was noticed that it was healing from one or two points of its surface, quite distant from its edges, and, after a time, the whole surface was covered by a cicatrix, which, I believe, subsequently gave way again to a trifling extent. A *sixth* and equally remarkable instance occurred in the case of Slater, in No. 8 of the marine building, who lost the whole of the penis, the scrotum, and a portion of the pubes, from a

sloughing chancre. The patient survived the prostrating effects of the terrible disease, the sloughs separated, and an immense gaping ulcer was left, with the stump of the penis in its centre, and the pendent testes. Cicatrization, after going on for some time at the edges, seemed to be arrested when the testicles were nearly covered. It then commenced at the stump of the penis, in the neighborhood of the orifice of the urethra, and, spreading outward, met the cicatrix from the circumference.*

The *seventh* case was in No. 10, marine building. A patient, named Whalen, had a very indolent chancre of large size on the dorsum of the penis, that had resisted various treatment, both local and constitutional, when, under the application of dilute nitric acid lotion, it commenced healing both from the centre and circumference, and, in a few days, cicatrization was complete.

Now, in none of the above cases, except the *sixth*, was it possible to have been deceived; for, from their very nature, it was impossible that any vestige of integument could have been left on the surface of the ulcer, to serve as the foundation for the subsequent cicatrization which formed there. The idea that this process can only take place from the circumference, arises from the fact that such is usually the course of ulcers, and from a mistaken opinion regarding the nature of the healing process, and of cicatrices. The fact is that skin is never regenerated; when once destroyed, it is gone for ever; and we were wrong in applying the term regeneration to the reparation which ensues after destruction of the scrotum. It is not regeneration of the scrotum, but a substitution for it. The dense, inelastic glistening substance, of which a cicatrix is composed, has as little resemblance, whether examined superficially, or by the microscope, to true skin, as has the latter to tendinous or ligamentous tissue. Skin may, however, be said to be regenerated in one way; for, when a wound involving an extensive destruction of integument has healed, the cicatrix is, perhaps, not

* It is possible that, in this case, it may have commenced at the orifice of the urethra, the lining membrane having, perhaps, first assumed the character of integument, as is sometimes the case with mucous membrane.

one-third the size of the original wound, and the remainder is true skin; but this skin has not been re-produced; it has only been drawn by the contraction of the granulations of the ulcer from the surrounding parts. Therefore, we always find that the more loose the integument and cellular tissue surrounding an ulcer, the smaller, *cæteris paribus*, will be the cicatrix, and *vice versa*. But little is known of the nature of the *cicatrix*. Boyer says, in his Surgery, after describing the approximation of the edges of the sound integument during the healing process:—"But still, a small extent remains, on which the skin does not advance, and in this part alone a true cicatrix is formed. All that we know of the mechanism of this process is, that the granulations which form that part of the bottom of the wound, over which the skin cannot extend, becomes covered with a membranous pellicle, which connects them together, dries, becomes organized, and takes the place of the natural integuments. Analogy would lead us to believe, that the pellicle is formed by the albumen, which also connects inflamed parts together." (Boyer's Surgery, vol. 1, p. 354.)

The fact that the cicatrization or closing of the sore is accomplished mainly by the approximation of its edges, indicates very clearly the appropriate treatment, where the circumstances of the particular case do not forbid it; viz., the artificial approximation of the edges by strapping. It was with this view that Baynton recommended the practice which has produced such a revolution in the treatment of obstinate and long-standing ulcers; though it is, we think, questionable, whether in these its efficacy is not rather due to the mechanical support afforded to the part, than to the approximation of the edges, which must be inconsiderable in consequence of the callous condition of the surrounding tissues. But there can be no reason why this treatment should be confined to chronic, indolent ulcers.

FREDERICK D. LENTE, M. D.,
Surgeon to West Point Foundry.

ART. IV.—*Penetrating wound of the Posterior Tibial Artery, followed by Traumatic Aneurism.—Ligature of the Artery at the Point of Injury.—Secondary Hemorrhage.—Amputation.* By J. H. BROWN, M. D. Paris, Me.

J. W. D., of Paris, Oxford county, Me., aged 35, nervous temperament, on the 12th June, 1851, received a penetrating wound in the left leg, about six inches below the knee-joint. The wound was produced by a sheep shears, one side of which was thrust violently into the calf of the leg by the kick of a sheep, while in the act of shearing. The direction of the wound was forward and downward, and slightly outward. The wound was not directly on the posterior side of the leg, but a little towards the mesiam line. Externally, it was about an inch in length, proving that the side of the shears must have entered the leg between one and a half and two inches.

On being called upon to prescribe for the wound about four hours after the accident, it was found as above described, without any external hemorrhage. A large, hard tumor had formed in the calf of the leg, distending it to the utmost in all directions, laterally, posteriorly; and extending between three and four inches above and as many below the external wound. On careful examination, the tumor was found to pulsate in correspondence with the action of the heart. The patient remarked, that on the receipt of the injury, "there was a rush of blood;" but that the bleeding externally did not continue more than from three to five minutes. The external wound then closed, and the tumor immediately formed. From the depth of the wound, its direction, and the consequent formation of a pulsating tumor, I supposed the posterior tibial artery had been wounded, causing a traumatic aneurism. The pain was severe in the region of the tumor, and the pulsation strong and distinct. As an aneurism had already formed, no treatment could be adopted to prevent such a result. For the time being a roller was applied to the limb, with a compress wet in tinc. opii over the tumor. The next day several surgeons were consulted in relation to the treatment that should be adopted.

The conclusion of a majority of those consulted was, that a treatment similar to that employed in many cases of true aneurism at the present day, should be first tried. This treatment was to consist of compression of the femoral artery at one or more points, by an instrument that would press upon the artery and the opposite side of the thigh, to such an extent as to cause the coagulation of the blood in the tumor, in the same manner and for the same purposes as recommended by Dr. Bellingham in Braithwaite, Part 15, pp. 187–8. The compression was to be so made as to leave all other parts of the thigh free except the points compressed. An apparatus was fitted up, which fulfilled these indications. It consisted of a tourniquet, armed with two semicircular pieces of wood, over which the strap of the tourniquet passed, and by the use of compresses was capable of controlling the circulation through the artery, with as much facility and safety to the limb as any apparatus for such a purpose.

Compression was commenced on the third day of the accident, and employed to such an extent as to prevent the pulsation in the tumor to the touch, though the passage of blood was not entirely suspended. It was continued during six or seven days. During this time, there was considerable swelling, some pain, and occasionally severe cramp in the leg. At the end of this time, the pulsation in the tumor was essentially diminished, and, to detect any, required very careful examination. The apparatus for compression was removed for several days, during which time the swelling, to a great extent, disappeared, but the cramp and pain continued, and the pulsation in the tumor increased. The pain was relieved by the use of opiates. While the compression was employed, and afterwards, a roller was closely applied to the leg, from the toes to the upper part of the thigh, and wet in a strong decoction of the papaver somniferum, surrounded by warm flannels.

At the end of three or four days, the cramp and pulsation continuing, it was deemed advisable to resort again to compression. The use of it thus far had had the effect of greatly diminishing the pulsation in the tumor. A farther employment of it, it was supposed, would complete the coagulation of the

blood in the tumor, and effect a cure. The leg and thigh being closely bandaged, the apparatus for compression was again applied in the same manner, and to nearly the same extent as before, and continued for twelve or fourteen days. After this time, it was continued during three or four days, but to a much less degree. From careful examination, I now concluded the pulsation in the tumor had ceased, and removed the compression. The cramp was severe soon after applying the apparatus, but grew less in a few days, and nearly ceased before it was removed. It was no severer at any time than when compression was not used. There was considerable tumefaction, and more or less pain during this time, which gradually subsided.

A consultation of surgeons, consisting of Drs. Kittredge, Millett, and Danforth, was called to decide on the future treatment of the case. Nearly five weeks had now elapsed since the injury. The pulsation in the tumor since compression had been abandoned, had increased and become quite distinct. It was quite certain the blood had not fully coagulated in the tumor, though the pulsation was greatly diminished. The question to be decided was, whether further reliance was to be placed on compression, or a ligature applied to the artery, at some point. The majority were of opinion that an operation was not required, and that the former course should be pursued. I supposed that compression had accomplished all it could, and that an operation was necessary; and did not, therefore, the four following weeks, prescribe much for the patient.

During these four weeks, but little was done for the case, except the application of poultices and fomentations to the tumor and leg, with a view to ulceration of the sac containing the extravasated blood. About a week before this time expired, an incision was made with a lance, through the skin and cellular tissue, on the front part of the leg, between the edge of the tibia and the tumor, there being at that point some signs of fluctuation. It was followed by no discharge whatever, except a little dark grumous blood, which oozed from the incision. A probe could be passed behind the tumor, through to the opposite side of the leg. At the expiration of these four

weeks, and one week after this incision, the following were the patient's symptoms:—Considerable pain in the leg; the tumor large, hard, and distinctly pulsating—the skin over it being of a purplish color, and very dark about the incision; the foot numb, inclined to be cold; the skin shiny and œdematous. He had but little appetite, was much exhausted, and very much emaciated and weak. He had anticipated a cure by compression, but had not realized his expectations; and with a feeling of discouragement, he thought a cure was even more distant than at the commencement. Dangerous and uncertain as I deemed an operation, at this late period in the case, I recommended it as the only possible course for the safety of the limb. I deemed an operation at the point of injury the best under the circumstances. The tumor obstructed an operation at the upper part of the leg; and if a ligature were passed under the femoral artery, and tied, owing to the immense tumor in the calf of the leg, and its long standing, it would certainly be followed by mortification. It was farther considered, that if the posterior tibial artery were secured at the point of injury, and was followed by secondary hemorrhage, the thigh would be in a healthy condition for amputation. Having the best authority for a resort to this treatment, and the concurrence of one physician beside myself, I obtained the consent of the patient to an operation. He was told that the operation would be painful, tedious, and difficult; that he might not survive it; that mortification and secondary bleeding might follow, and amputation be rendered necessary. He answered by saying, "I shall die as I am; I can do no more if operated upon."

Assisted by W. A. Rust, M. D. of Paris, the operation of applying a ligature to the posterior tibial artery, at the point of injury, through the aneurismal sac was attempted, and with considerable difficulty performed. An incision was made, three inches in length, on the posterior and most prominent part of the tumor, a little to the outside of the original puncture, in the direction of the posterior tibial artery, through the fleshy parts of the gastronemius and soleus muscles. On arriving at the clotted blood, a portion of it was removed, and the tourniquet which had been applied to the thigh was loosened, so as to ascertain

whether any bleeding would take place. As soon as this was done, there was a flow of red blood welling up from the bottom of the sac, through the clots, and beneath the point where the scalpel had penetrated. This convinced us that there was *active hemorrhage from an artery*, that must be secured. I enlarged the incision to six inches or more; removed the clots, amounting to at least a pint and a half; cleansed out the sac with a sponge, and again loosened the tourniquet, to ascertain the precise point from which the hemorrhage proceeded. The patient fainted, but soon rallied by the use of stimulants. I again cleansed out the sac, and not being satisfied where the precise point of bleeding was, I placed my finger upon the supposed locality of the posterior tibial artery, above the supposed puncture, and again removed the tourniquet. I felt the artery pulsate, and saw the place from which the blood proceeded, welling up from a point just below my finger. The sac was filled with blood before the tourniquet could be tightened, and the patient again fainted. After cleansing out the sac again I proceeded to search for the artery. There was no guide—no pulsation—the surface of the sac being very dark, and the cellular tissue behind the fascia, which incloses the deep-seated muscles, blood-vessels and nerve, being indurated and discolored. The search, therefore, was rendered tedious and difficult. Judging of the usual locality of the posterior tibial artery at this point, the fascia and arterial sheath was opened, and the artery at last found imbedded in a mass of indurated cellular tissue. The artery was secured by ligature, the tourniquet removed, and there was no more hemorrhage. The sac was now cleansed, and, after waiting a short time, to ascertain whether a returning hemorrhage would occur; none following, the edges of the sac were brought together, confined by adhesive straps and a roller, and the patient was laid in bed. He was much exhausted, but in the course of twelve hours, reaction took place, and he was doing well.

It should be here stated, in passing, that the contents of the tumor consisted of clotted blood. Some of them were very dark colored and partially broken down and decomposed. Near the bottom and central part of the sac the clots were firm and partially organized. On washing them, these latter

were of a white fibrinous color and consistence. The only exception to the statement, that the whole contents were clotted, was the fact, that for a space as large as a hen's egg, and of similar shape, at the point supposed to have been originally punctured, the blood was not clotted. Around this oval space the clot was concave, hard, smooth, and resembled a stone hollowed out by the action of water.

The operation was not followed by great constitutional irritation. On the third day healthy pus was discharged from the sac. During the ten days subsequent to the operation the patient appeared to be doing very well. The swelling had mostly left the ankle and foot—the skin was of a natural color and temperature—the numbness had disappeared; and the wound was discharging a healthy pus, which diminished in quantity daily. Both patient and physicians now supposed the darkest period had passed, and that a speedy recovery was quite certain.

At the end of this time, however, on the eleventh day subsequent to the operation, a great change had taken place. The leg had become suddenly swollen, pressed, hot and painful. Arriving on the morning of August 26th, I learned what had taken place, and the patient remarked that "his leg was bursting open." On removing the roller and giving freedom to the parts, the source of difficulty became fully known in all its frightful features. The event so much dreaded, and so alarming, had actually occurred—that of *secondary hemorrhage.* Immediately on removing the roller, the cavity of the leg, formerly occupied by the clotted blood, became filled up and pressed out on all sides; and fresh arterial blood commenced pouring a powerful, steady current through the opening left in the incision for the discharge of pus; and likewise through the incision between the tibia and tumor made a week prior to the operation. Time was now precious. The thumb was placed upon the femoral artery, and a tourniquet immediately applied to the thigh. A consultation of surgeons, consisting of Drs. Kittredge, Millett and Howe, was called with all possible dispatch. When they had assembled there was only one opinion as to the course to be pursued. Amputation of the leg above the knee-joint was decided upon as the safest

and most judicious method of treatment. Preparation was accordingly made, and the leg amputated forthwith. The patient endured the operation with the greatest fortitude; and although the chances for recovery, at the time, were not considered greater than as one to four by any of the surgeons, yet he seized upon even this faint hope with the greatest avidity; and thought it much better than none.

The post-mortem examination of the leg proved that the posterior tibial artery had been wounded; and that a ligature had been applied to it, above the puncture. Where the ligature was applied, the artery was completely separated for the space of half an inch. The divided ends of the artery were open and empty—its coats thin and smooth. To make sure that there was no mistake about the character of the blood-vessel that had been secured, I cut down upon the popliteus muscle, found the posterior tibial artery, and introduced into it a probe, which passed out of the open end of the artery where the ligature had been placed. This upper portion of the artery was apparently healthy—its inner surface smooth—of a light straw-color, and about two lines in diameter. The part below where the ligature was applied, for the distance of an inch and a half, was not more than half the diameter of the part above—its coats very much thickened—its inner surface rough and studded with a great number of small light-colored eminences, of cartilaginous hardness. At one point on the posterior side of the artery, about a quarter of an inch below its open end, there was an eschar which projected inwardly, about a line and an half in diameter; and all the coats were much thicker at this point. The little eminences clustered thick about this point on the inner surface of the artery, while externally the outer coat was much thickened and attached to the cellular tissue. The coats had the appearance of having been punctured by a pointed instrument, subsequent to which it had closed over. The direction of the wound could be traced with great accuracy through the muscles to the punctured point in the artery. The clot was bounded anteriorly by the deep-seated fascia which surrounds the blood-vessels, nerve and deep-seated flexors—laterally by cellular tissue, and posteriorly by the soleus muscle. The sac was between seven and eight inches in length.

The patient suffered much after amputation from spasm of the muscles about the thigh, as is usual in such cases; but the parts healed with great promptness, and in less than six weeks the patient was able to leave his bed, walk about with the aid of crutches, and ride several miles from his residence.

ART. V.—*Memoir on Nicotine, by* M. ORFILA. *Translated from the French, by* CHARLES A. LEE, M. D., with notes.

[Concluded from page 243]

Examination of seven pieces of plank, which had been sawed and removed from the floor of the dining-room of the Chateau of Bocarmé, at Bury; for although they had been subjected to repeated washings, they, nevertheless, still apparently bore marks of blood.

FOUR of these planks had been washed; there were noticed on them scratches, or marks, which appeared to result from rubbing violently some hard body upon the wood; there were also observed numerous irregular spots, some brown, others of a reddish-brown, and others still of deep red color. The plank marked No. 2, presented especially spots more strongly characterized than the others. The upper surface of the planks, Nos. 1, 2, and 4, was planed, in order to detach shavings. Plank No. 3 was left entire. The very fine shavings obtained from the other planks were left to macerate in cold water, each in a separate vessel. The liquid contained in each of these vessels was colored uniformly of a pale brownish yellow; each was very distinctly alkaline, when tested with turnsal: each had the decided acid taste of tobacco; each was acidulated with oxalic acid and filtered—each liquid was then exposed to a dry vacuum to reduce it to three quarts—a small portion of the residue of the evaporation of each of these was introduced into three small experiment flasks, and mixed, each with its own volume of a solution of caustic potash, and agitated with ether.

The ether, decanted after sufficient repose, and left to spontaneous evaporation, furnished slight, oily, colorless striæ, of a very pungent odor, and of a burning acid taste, which extended into the mouth and fauces; this oily matter was alkaline to turnsal. It disengaged at the ordinary temperature, coloress vapors, which, by contact of a stopple, impregnated with hydrochloric acid, produced white fumes —water dissolved it immediately, and the solution was colorless and alkaline; it was saturated with hydrochloric acid, and increased

afterwards by a drop of a solution of bichloride of platinum; the mixture, left to itself, furnished by slight evaporation yellowish, quadrilateral rhomboid prisms, insoluble in alcohol and ether.

These facts left no doubt of the presence, in each of the pieces of plank, of *the same alkaloid* as that found in the organs of Gustavus Fougnies.

Planks 5, 6 and 9.—No. 7 presented an irregular cavity, resembling a knot of wood, and filled with a thick fluid; its surface was black, and it stained the fingers and paper like oil. This matter, with a portion of wood, was removed by a gouge; the whole was placed in a small globular vessel, with water, acidulated with oxalic acid; and digested at a temperature of 30 to 40 degrees (centigrade). The liquid was then decanted, and the matter washed with distilled water; the washings were evaporated with a gentle heat, and united with the first liquids.

Ammonia was then added, and the mixture was afterwards agitated with ether; this, after suitable rest, was decanted and left to spontaneous evaporation; it left an oily coat of considerable amount, of a colorless liquid matter, of a sharp, disagreeable, and aromatic odor, and a burning acrid taste, which was experienced in the mouth for a long time; this matter was alkaline to turnsal. It was taken up by ether, and the solution was preserved for future use.

The substance removed by the gouge, which had been exhausted with water acidulated with oxalic acid, was dried with care, and hastily treated with ether; the liquid was colored, of a slightly greenish yellow; left to spontaneous evaporation, it left a very notable quantity of a thick, liquid matter, of a light greenish-yellow color, and having the odor of rape oil. This matter was placed in contact with nitric acid of the sp. gr. 1.100; at the end of 48 hours, it was changed into white clots (*grumeaux*). It follows, then, from this examination, that the blackish matter confined in this close cavity, besides the alkaloid found on the planks, 1, 2 and 4, contained a certain amount of non-drying oil, which had the odor of the oil of rape-seed.

The upper surface of planks Nos. 5, 6 and 7, was planed. The chips procured were macerated with water in a separate vessel. The water of each vessel was colored of a brownish yellow, and acquired a very decided alkaline reaction; the taste of each liquid was sharp and pungent to the fauces. They were acidulated with oxalic acid, filtered, and subjected to evaporation in dry vacuo. One portion of

the residue of each of the liquids was introduced into a small flask, separately, and an equal volume of a solution of caustic potash added; the mixture was agitated with ether, which, after suitable rest, was decanted into a watch-glass, and left to spontaneous evaporation. There remained in each glass very abundant shining striæ, colorless, of a pungent, disagreeable odor, and a sharp burning, very persistent taste, turning blue the reddened paper of turnsal. This matter formed with water, in which it was dissolved, a colorless, transparent liquor, which was neutralized by hydrochloric acid: the solution, with the addition of bichloride of platinum, and left to itself in a warm place, deposited at the end of half an hour, quadrilateral rhomboid prisms of a golden-yellow color.

There is no doubt that the spots found on the planks 6 and 7, were due to the same alkaloid as was discovered in the organs of Gustavus Fougnies.

The shavings from planks 1, 2, 4, 6 and 7, which had been exhausted of all soluble matter in water, acidulated with oxalic acid, were dried with care, and afterwards treated with pure ether. The other, decanted and abandoned to spontaneous evaporation, furnished an abundant white product, semi-liquid, oily, which stained paper, and which reddened the blue paper of turnsal, slightly moistened. This product, treated by a quantity of alcohol, not sufficiently anhydrous, left a fatty solid mass, which, after being dissolved in boiling alcohol, gave, on cooling, small quite scales: fusible, and reddening the blue paper of turnsal.

No doubt these chips contained both liquid and solid fatty acids. The acid solutions obtained by treating the chips of planks 1, 2, 4, as well as those obtained by treating the chips of planks 6 and 7, were united, and caustic ammonia added; the mixture became brown; it was then agitated, after many exhaustions, with ether, to remove from it the last traces of the alkaloid. The ethereal solutions were reunited, and joined with those which had been obtained by treating with oxalic acid, with ammonia and ether, which had acted on the black matter contained in the knot before mentioned. This liquid was subjected to spontaneous evaporation, exposed to a current of hydrogen gas; there remained a yellowish liquid of a very pungent, disagreeable odor.

[It is unnecessary to describe at length all the processes employed, as they were similar to those described in the former part of this paper; *nicotine* was recognized distinctly in this, as in the former experiments. To sum up, plank No. 2, presented three spots, which

were caused by blood; 1, 2, 4, 6 and 7, contained *nicotine;* plank No. 7, presented a mark, formed by oil, apparently rape-oil; planks 1, 2, 4, 6 and 7, presented fatty acids and potash, one portion of which proceeded from the soap employed to wash them; another part was, perhaps, that found in the wood of the oak.]

Requisition of the 7th Dec. 1850.—*Examination of an old pantaloon, of brown cloth, belonging to Francis Blicquy, a day-laborer, employed at the Chateau of Bury.*

After subjecting it to a great number of experiments, which it is useless to describe, M. Stas concludes that the spots with which the pantaloon was covered, were produced, some by hydrochloric or sulphuric acid; others by an alkaline solution of potash or soda; others, as the brown, thick and somewhat gluey, by a substance containing nicotine; this substance exhibited the same reactions as the watery extract of tobacco.

Requisition of the 10th Dec. 1850.—*Chemical analysis of animals, made for the purpose of discovering whether they died from indigestion, or the action of a poison.*

Two cats and two dogs found inclosed in wooden boxes, in the garden of the Chateau of Bitremont, were examined; the boxes exhaled a very putrid odor; the animals were smeared all over with vegetable mould; they exhaled a disgusting odor. On opening the cats, the lungs were found to be black, very emphysematous, of a livid color, the stomach much distended with gas; this viscus contained a viscid, putrid fluid, consisting of decomposed flesh, the paw and tail of a mouse, etc; it was strongly alkaline; the jaw was disarticulated with the greatest ease; the buccal cavity was filled with a very viscid fluid, of a blackish green color; the end of the tongue was black; the epithelium was detached with the least effort; the whole pharynx was filled with a greenish fluid; the different organs changed to blue turnsal paper. In experimenting upon them, in the manner already described, M. Stas concludes that they contained an organic, volatile alkaloid, of a sharp suffocating odor, and of an equally pungent taste; but the reactions obtained, were insufficient to affirm that the alkaloid was nicotine.

Requisition of the 7th Jan. 1851.—Having for its object to determine whether it be possible to extract nicotine from the two kinds of tobacco, found (*Indig. and Exotic,*) after having devoted himself to the researches proper for extracting nicotine, M. Stas concludes in the affirmative.

Requisition of the 16th Jan. 1851.—Having for its object to make an analysis of the liver and lungs in their normal state. Subjected to the same experiments as were made to detect nicotine in the liver and lungs of Fougnies, results which showed conclusively that these organs contained no nicotine.

Requisition of Feb. 27th, 1851.—Having for its object to make experiments on animals, in order to ascertain if the same phenomena would be observed, as were noticed in Fougnies.

In order to attain the end in view, says M. Stas, I believed it necessary to make three experiments; the 1st, to destroy a dog with nicotine; the 2d, to kill another dog with an equal quantity of nicotine, but turning down his mouth, immediately after death, a certain quantity of acetic acid;* and lastly, 3d, to kill a dog by insufflation of air into the jugular vein. From the results furnished by these three experiments, we may deduce, 1st, the part which receives the nicotine by the organic alterations observed in the autopsy, made forty-eight hours after death; 2d, the effects due to the ingestion of the acetic acid after poisoning by nicotine; 3d, in fine, the effects which equally result from cadaveric imbibition.

1*st Experiment.*—A dog of moderate size, old, poor, and of feeble constitution. Two cubic centimetres of pure nicotine were turned upon its tongue, by means of a pipette. The poison had scarcely come in contact with the tongue, when it took on a violet odor; the animal was agitated and made efforts to reject the liquid ingested; it fell immediately on its right side; it took on tetanic convulsions; the vertebral column became stiff; the neck and head were bent towards the back; the anterior and posterior extremities were alternately extended, as was also the tail. Besides the extension, they moved as in the act of swimming, the pupils were dilated to such a degree, that the iris only presented a very narrow circle; the convulsions increased in force, the spinal column and the four limbs were extended; the tail bent, and the animal expired. At the same moment there flowed from the mouth a considerable quantity of a clear, ropy fluid, which was saliva. During these phenomena, the tongue hung from the mouth. Between the administration of the poison and its death, 30 seconds elapsed, and the last expiration had scarcely taken place, when complete relaxation of the muscular system of animal life succeeded.

2*d Experiment.*—A full-grown dog, of moderate size, and of strong

* M. Stas believed that Fougnies died under these circumstances.

constitution; two cubic centimetres of pure nicotine were poured upon its tongue. The tongue assumed the violet hue, as observed in the last experiment. There was an escape of urine. The animal soon fell upon its *right* flank, and presented a series of convulsive movements of which I have spoken, with this difference, that their access was more violent and their duration more prolonged. Death followed in about *half a minute.* A flow of saliva did not follow, as in the former case, but fæces were expelled. Immediately after the last breath, 32 cubic centimetres of vinegar (taken from the house at Bitremont) were turned into its mouth. The liquid flowed into its stomach, and the tongue was discolored at the moment of contact.

3*d Experiment.*—A grown dog, of moderate size, and strong constitution. A certain quantity of air was introduced into the jugular vein. The animal made several groans. The respiration became difficult, and nearly arrested. The beatings of the heart, more and more irregular, became feeble, and were soon extinguished. These phenomena lasted about two minutes and a half, at the end of which time the animal expired.

Autopsy of the body of the first dog.

The body was placed in the position it had at the moment of death, that is to say on the right side. It was slightly meteorized, and gave forth a decided odor of putrefaction. The abdominal walls were green; the tongue was swollen, especially at its base, which presented a deep red hue, and covered with a glutinous matter; the floating portion was of a grayish, dull, livid color. The epithelium was detached with the greatest facility by keeping over it the handle of the scalpel. The red hue of the base of the tongue extended to the pharynx, and the esophagus and viscera of the abdominal cavity presented nothing in particular, unless it were a strong sanguineous imbibition, a phenomenon purely cadaveric. The fluids of the liver were without action when exposed to test-papers. The larynx and trachea were sound; the right lung was gorged with black blood. The left, equally gorged, presented a group of apoplectic spots. The right heart was obstructed by black grumous blood, of little consistence, and the same was true of that found in the left, though it was less abundant. The brain was somewhat softened; the spinal marrow exhibited a red discoloration of its membranes, with sanguineous exudation in the superior cervical region, from the third cervical vertebra to the occipital foramen; with the aid of a magnifier slight dots could be perceived.

Autopsy of the second dog.

Death produced by nicotine, followed by ingestion of acetic acid. Considerably swollen; a sanguinolent fluid flowed from the nostrils; putrid odor; persistent paleness and discoloration of buccal cavity; the tongue had a grayish, livid aspect, but not swollen; the floating portion appeared slightly hardened; at the right border of this portion of the tongue, there was a deep bruised depression, owing evidently to the pressure of a tooth. The epithelium was raised in strips with the greatest facility. The pharynx offered the same aspect as the buccal mucous membrane. The œsophagus was normal.

Besides the hypostatic sanguineous congestion in the abdominal cavity, the stomach contained a liquid of the color of the lees of wine. There extended from the pylorus upon the nerves of the mucous membrane, red, crimson-colored striæ; the same discoloration, though less intense, extended to the duodenum; the liver gave a very decided acid reaction.

The lungs appeared more dense than in their normal state; the apoplectic layers, the quantity and quality of the blood contained in the cavities of the heart, did not differ from what was observed in the first dog.

The cerebral substance preserved its normal consistence; it was dotted, and the plexus chorides injected. The pathological lesions of the spinal cord presented this difference, that the sanguineous engorgement was a little greater, and extended from the third cervical vertebra to the rachidean bulb; it ceased, on a level with the subsphenoid sinus.

Autopsy of the third dog, killed by air.

With regard to swelling, putrefaction, green color of the abdominal walls, etc., the body held a medium between the two preceding. In the digestive apparatus, with the exception of phenomena purely cadaveric, the whole was in a normal state. The right lung was the seat of hypostatic congestion; the left presented a uniform orange appearance, and the same permeability which characterizes sound lungs in the dog. The right cavities of the heart were much distended, and they contained black foaming blood. The brain and spinal cord, at its upper part, as well as the envelopes of the nervous centres, were in a normal state; no pathological ariose nor cadaveric alterations were observed.

The autopsy of the bodies being completed, we then proceeded

to try the poisonous properties of the alkaloid, *extracted from the organs of Fougnies.* M. Stas made three experiments: two upon sparrows, the other upon a pigeon.

1*st Experiment.* The tongue of a sparrow was touched by a narrow capillary tube, containing a small quantity of this alkaloid. In a few moments, the bird reclined its head, and exhibited tetanic convulsions, precisely like those which had been observed in the dogs destroyed by nicotine. It died at the end of two minutes forty-five seconds, falling on its right side.

2*d Experiment.* A very small drop, as small as could be taken up with a capillary tube, was applied to the tongue of another sparrow. It immediately dropped its head and experienced tetanic convulsions, like those observed in the dogs. It died at the end of thirty seconds, falling on its right side.

3*d Experiment.* A small drop was placed in contact with the tongue of a vigorous pigeon. One portion of the liquid was projected, from a sudden shake of the head. In the course of a few seconds it had tetanic convulsions, like those observed in the dogs. It died at the end of one minute five seconds, and fell, like the other animals, upon its right side. Immediately after the death of this pigeon, we proceeded to an anatomical examination of the brain, and cervical portion of the spinal marrow. The central portion of the encephalon was in a normal state. Opposite the third cervical vertebra, and on the anterior face of the cord, there was a bloody stria, which extended to the medulla oblongata. In order to establish a comparison between the alterations presented by these animals and those which had been observed on the body of Fougnies, see the medico-legal report of the autopsy, p. 231.

Answers of M. Stas to questions addressed to him by the Judge of Instruction.

1*st Quest.* To instigate and prove, by the aid of chemical analysis of the cadaveric materials extracted from the body of Fougnies, first, if he had swallowed any poisonous or morbific substance.

Ans. From the numerous and incontestable results furnished by the chemical analysis of the organs of Gustavus, I conclude that the deceased had swallowed some poisonous substance.

2*d Quest.* What was the nature of this poison?

Ans. The substances were, first, *nicotine*, an organic alkali existing in tobacco, and one of the most violent poisons known; second, acetic acid (vinegar).

3*d Quest.* Was it not sulphuric acid?

Ans. It was not.

4*th Quest.* What quantity had been swallowed?

Ans. It is impossible to say what quantity of nicotine and acetic acid had been taken; but I affirm, that the quantity of nicotine which I extracted from the organs of Fougnies, was more than sufficient to kill the strongest man.

5*th Quest.* Was it not mixed with some other matters when given?

Ans. The severity of the lesions, observable in the organs of the deceased, cannot be explained, on the supposition that it was mixed with other liquids.

6*th Quest.* Was not the black color of the lower lip (the upper being of its natural color), of the tongue, and of the whole mucous membrane of the mouth, or fauces, owing to the passage of some acid, particularly the sulphuric?

Ans. The alterations observed in the organs of the deceased coincide with those noticed in animals poisoned by a large dose of nicotine; nevertheless, the presence of vinegar may have produced some modifications in the nature of those alterations. I will explain myself on each of these points.

The experiments made with a very minute quantity of nicotine, extracted from the stomach of Fougnies, upon two sparrows and a pigeon, left no doubt regarding the presence in the organs of a poison of exceeding power; since it destroyed by simple contact, and in a short time. It was only necessary, then, to prove, that this poison was nicotine.

To arrive at this result, it is sufficient to compare, 1st, the physical and chemical properties of these two substances; 2d, the organic changes presented by the animals killed by nicotine, and those observed in the organs of Fougnies. The table hereafter given, containing a comparison of the physical and chemical properties of these two substances, proves their complete and absolute identity in this respect. It remains, then, to show the similarity of the organic alterations produced by nicotine and the poison extracted from the body of Gustavus. The problem is complex; the organs of Fougnies contained, besides nicotine, a certain quantity of vinegar, which, having other properties, I may say almost opposite to those of nicotine, might modify, to a certain extent, the tissues which had been subjected to the action of the first poison.

The chemical properties of nicotine, in fine, are those of a caustic

alkali, which softens the tissues in destroying them, while the properties of vinegar are those of a dilute acid, which tend to contract the tissues, softened by the cauterizing action of the alkalies. But, however this may be, in comparing the results of experiments made upon dogs, with the aid of nicotine, with those which have been given in the report of the autopsy of the body of Gustavus Fougnies, keeping in view the modifications due to the presence of vinegar, I arrive at the conclusion, that the organic attractions are similar, including the lesions on the side of the tongue, the buccal cavity, the pharynx, the stomach and respiratory organs.

In conclusion, a careful examination of the report of the autopsy of Gustavus Fougnies, as well as my own observation, and especially the profound alteration of the upper surface of the tongue, induce me to believe, that the swallowing of these two substances took place in the following order:—The nicotine was first given, and afterwards Gustavus was *laid upon his back*, with the head turned to the right side. Immediately after, tetanic convulsions supervened, and continued till his death, which followed very soon after the administration of the poison. During these convulsions, the tongue was taken between the teeth, which will explain the deep print of two teeth observed upon the upper surface and left side of this organ. The vinegar was administered when life was already extinguished, and when the poison had produced all its cauterizing effect on the parts with which it had come in contact.

7th Quest. Seven pieces of oak plank, detached from the floor of the dining-room of the Chateau of the Bocarmés, at Bury, although subjected to repeated washings, did they not appear, nevertheless, to bear the marks of blood?

Ans. The pieces of plank, above mentioned, appear to me to have been obtained from two different parts of the floor. The planks marked Nos. 1, 2, 3, and 4, seem to have belonged to one part of the floor; and those marked Nos. 5, 6, and 7, to another part. The planks 1, 2, 3, and 4, had been thoroughly *washed with soap and water*. The plank marked No. 2 presented undoubted signs of blood. The planks 1, 2, and 4, contained a very notable quantity of nicotine. The planks 5, 6, and 7, had not been particularly washed. The plank marked No. 7 contained, in a depression, caused by a knot of the wood, a certain quantity of fixed oil, which appeared to be rape oil. The planks marked 6 and 7 also contained nicotine. In fine, I affirm, that most of the spots observed on the planks Nos. 1, 2, 4, 6, and 7, are due to nicotine, which had been freely spilled on the floor.

I moreover affirm, that some of these spots are owing to blood which had fallen on them.

8*th Quest.* To investigate and show, if an old pantaloon of brown woollen stuff, belonging to Francis Blicquy, a day-laborer at Bury, bore marks, traces, burnings, or any signs that they were caused by an acid, a poisonous or chemical substance; to verify, in short, the nature of the above acids, substances, or chemical ingredients?

Ans. The pantaloon, above mentioned, which had been partially washed, presented incontestable marks of burning, produced by a mineral acid, sulphuric or hydrochloric; the others indicated the action of a caustic alkali, potash, or soda. In fine, the pantaloon bore marks, more or less thick, or expanded, due to a substance which gave the *odor of tobacco*, and which contained a notable quantity of nicotine. It is very probable, however, that the substance causing the marks, was the watery extract of tobacco. I should add, that I have not the least doubt, that Francis Blicquy handled the chemical agents (the acids and alkalies), when he wore the pantaloons.

9*th Quest.* To examine and ascertain if two cats and two dogs, or one of these animals, did not perish in consequence of swallowing poisonous substances, and what these substances were?

Ans. The great alterations which had taken place in these animals, did not allow an examination of the whole four. I only attempted to detect nicotine in one of the cats. The result of these researches is, that the body of this animal contained a very small quantity of a volatile alkaloid. The properties which I have been able to establish, from this minute quantity, are insufficient to enable me to prove that this alkaloid is identical with that which I extracted from the organs of Fougnies; nevertheless, I am compelled to state, that the identity of these two matters appears to me probable. But, however it may be with regard to this identity, it is certain that this alkaloid had been given to the cat; because liquid and volatile alkaloids are never produced by putrefaction.

10*th Quest.* To examine and show if the poison found in the body of Fougnies, may be obtained from the two kinds of tobacco left in the house of A. Wisebaut, the gamekeeper of Count Bocarmé?

Ans. These two specimens of tobacco contain a very notable quantity of nicotine; and they might both have served to furnish the poison discovered in the body of G. Fougnies. It is, however, one of these samples (the exotic tobacco), that is usually employed by chemists for extracting nicotine.

11*th Quest.* To ascertain if the vinegar contained in a bottle found

at the Chateau of Bitremont, could produce one of the substances found in the body of Gustavus Fougnies?

Ans. The vinegar above mentioned, might evidently have furnished the acetic acid found in the organs of Fougnies, but it could not have furnished the nicotine, because it does not contain it. From experiments made with nicotine, it appears that vinegar changes the appearance of the tongue, which has been subjected to the caustic action of nicotine; under its influence this organ acquires, at first, a violent hue. At the autopsy made forty-eight hours after death, the base of the tongue was found excessively reddened, although vinegar applied to this organ immediately after the death of a dog, made the violet color instantly to disappear, and at the autopsy made forty-eight hours after death, the tongue instead of being red, was grayish and livid, or it was in the same condition, as the physicians who examined the body of Fougnies found in his case, forty-eight hours after death; it was in the same state also in which I found this organ, when were intrusted to me, the other portions of the body to search for some poisonous matter.

12*th Quest.* To perform upon a human liver of a patient who died at the Hospital Saint Pierre, at Brussels, the same processes and chemical experiments as those employed on the body of G. Fougnies, and ascertain the result?

Ans. The liver of the patient above mentioned was subjected to the same experiment as those, by the aid of which I discovered a volatile alkali in the liver of Fougnies, but did not furnish me *any trace of this alkaloid.*

13*th Quest.* To proceed in the same manner with the lungs of the same patient?

Ans. The same answer.

14*th Quest.* To prove and establish by experiments made in the presence of the judge of instruction, if nicotine produces upon the body of animals the same phenomena as those observed in the case of G. Fougnies?

Ans. Keeping in view the modifications produced by the ingestion of vinegar, the pathological or organic phenomena observed in dogs killed by a considerable dose of nicotine, they are the same as those pointed out in the case of M. Fougnies. In the answers to the queries of the 27th November, 1850, and January 14th, 1851, I explained myself so fully on these points, that I do not think it necessary to enter here upon any new discussions.

The properties of Nicotine compared with those of the Alkaloid extracted from the organs of Gustavus Fougnies.

Each was liquid and colorless, presenting the pungent odor and disagreeable taste of tobacco. Each had a sharp, burning, very persistent taste, and was volatile. Both distilled without change in a current of hydrogen gas; both were inflammable, burning with a sooty flame, having a strong alkaline reaction, both to turnsal and curcuma. Each perfectly saturated acids, and was soluble in water and ether, while the other took it up from the water.

The salts of Nicotine and of the Alkaloid extracted from the body of Fougnies, possessed the following characters.

Both possessed the sharp taste of tobacco; were not deliquescent; were very soluble in alcohol; were for the most part insoluble in ether; both crystallized in insoluble needles in ether, and was very deliquescent, combining with bichloride of mercury, and producing a double chloride crystallizing in needles. A watery solution in each case threw down the white bichloride of mercury, and the precipitate was insoluble in water. The hydrochlorate of the alkaloid, and of nicotine, combined with the bichloride of platina, and formed a double chloride, which crystallized in rhomboid quadrilateral prisms; a solution of each threw down the protochloride of palladium, of a chocolate color, the precipitate being soluble in an excess of the solution in each case, while the solution was colorless. The hydrochlorate of both, combined with protochloride of palladium, and gave red prisms, which were very soluble in water, and colored the liquid blood red. The hydrochlorate of both also combined with chloride of cobalt, forming a double chloride, which crytallized in flat prisms of a greenish hue, soluble in water, which they colored like red currants.

The oxalate of both when perfectly neutral, was liquid and oily, the oxalic acid crystallizing in very confused crystals. The tartrate of each crystallized in grains, while the phosphate of both crystallized in flat plates of a greasy aspect. A solution of both salts threw down a brown precipitate (resembling kermes), from the bi-iodide of potassium.

The precipitate of both reunited in a few moments under the form of oily drops, of an intense red color, which ended by taking on the form of a crystalline mass.

Signed, IS. STAS.

I will conclude this part of the Essay on Nicotine by a letter which I wrote to the defenders of Bocarmé, in answer to one which they addressed to me.

PARIS, *June 10th*, 1851.

To Messrs. Lachaud and Depaepe.

Gentlemen:—You wish to learn my opinion regarding certain points relating to the properties and mode of action of nicotine on the animal economy; and you desire me to answer the four following questions:

1st. Is it proved that G. Fougnies swallowed nicotine when lying upon his back?

2d. Has nicotine so powerful an odor that a person might not swallow a certain quantity in drinking some other liquid?

3d. Would tartaric acid, when mixed with nicotine, modify its poisonous properties?

4th. Would a liquid containing a considerable portion of nicotine, kill as speedily as pure nicotine? and would it not, according as it contained more or less of this poison, cause death in about five or six minutes, producing in the tissues lesions like those observed in the body of Gustavus Fougnies?

The scientific interest which attaches to the solution of these questions, is so important, that I do not hesitate to say what I think regarding each of them.

First Question.—Is it proved that G. Fougnies swallowed nicotine when lying upon his back?

To enable me to reply to this point, you send me a description of the organs contained in the mouth of the deceased, such as was given by the physicians who examined the body, Nov. 22d, 1850, that is to say, two days after death, and also as made by M. Stas on the 27th of the same month. The solution of the question, if it is possible, being founded on the state of these organs, it is necessary to transcribe literally, that which has been stated by these gentlemen.

We read in the report of the physicians, "The lips were pale, hard, covered with crusts of a grayish brown; similar crusts filled also the interstices of the teeth. The tongue was nearly twice its normal size; the mucous membrane, of a *blackish gray*, was destroyed through the *whole* extent of its upper surface, and along its edges; the mere touch of the back of the scalpel raised it in small strips, having but little consistence. That portion of this membrane, which covered the lower surface of the tongue, was red and injected. The

whole remaining portion of the buccal mucous membrane was equally red, burnt, and detached with the greatest facility, except that which covered the arch of the palate, which was of a grayish white. The same was the case with the *whole* mucous membrane of the fauces. The tonsils, *especially the left*, were larger, and less consistent than in their normal state; they could be easily divided. Lastly, the mouth contained a considerable quantity of a glairy fluid."

M. Stas informs us, "that the tongue was very large and swollen; that its mucous membrane, on its superior surface, presented *on the right*, for two-thirds of its floating portion, a *bluish black aspect*, although the rest was of a *blackish gray;* that it bore on its left the print of two impressions of teeth; that on this part there was some extravasated blood, and there were also observed some marks, made by a sharp and pointed instrument. The mucous membrane of the upper surface of the tongue was red, injected, and covered with a very viscid fluid, of a yellowish white. The mucous membrane, on its upper and lower surface, says M. Stas, was much softened, the *epithelium* was raised with the greatest ease. The tissues of the tongue were much softened; and but little, except the central portion, which has preserved its natural consistence." No mention is made of the state of the tonsils.

One is, at first, struck with the disagreement which exists between some portions of these two descriptions. It is worthy of note, that in both we find unequivocal traces of the action of a caustic poison. It is to be observed that the reports of the physicians (experts) do not make any mention *of the profound alteration of the right half* of the upper surface of the tongue, as compared with the left (as noticed by M. Stas); they do not establish any difference between the lesions of these two sides of the tongue; still more, when they describe the state of the tonsils, they find that it is the *left side* which is most affected. Being questioned on the 20th of March, 1851, that is to say, three months after the decease of G. Fougnies, regarding the cause of his death, they state that it ought to be attributed to nicotine, and they explain, by its caustic action, the development of *black injected plates* upon the tongue, without noticing the difference which had been observed on the two sides of the organ. How can such a discordance be explained? Is it presumable that the physicians charged with the duty of making the post-mortem examination, when their attention had been called in an especial manner to the state of the mouth, which they have minutely described, would not have been struck with so remarkable a difference as that of which

I have spoken? It is difficult to suppose it. Is it possible that, on the 27th of November, when M. Stas examined the tongue for the first time, that this organ had already undergone a change of color, in consequence of its immersion for five days in alcohol? It is impossible to reject this explanation, without producing the results of experiments, which may prove its insufficiency. If I insist upon the difference between these two descriptions, it is because the solution of the question which occupies me is chiefly here:—What is, in fine, the motive which induces Mr. Stas to think that the swallowing of nicotine and vinegar took place, when Gustavus was lying on his back, with his head turned to the right side? It is, especially, the derangement observed on the right side of the tongue. Either cause the difference in the derangements to disappear, or clearly show that this difference was owing to the examination having occurred at two periods (the 22d and the 27th Nov.), and the reasoning of M. Stas will lose all its strength, and especially, since the physicians will say to him, How is it, if your statement is founded in the derangements which exist *upon the right*, that we have found the *left* tonsil more affected than the *right?* These considerations, which are of a nature to raise a doubt in my mind, are not the only ones which go to strengthen this doubt. It is very certain that when one swallows a liquid of an agreeable taste, such as water or wine, the fluid moistens equally every part of the mouth, and enters directly into the fauces without effort, and without occasioning the slightest unusual movement. Deglutition is performed as in the normal state, whether the person be erect or lying on his back. But is this the case, when a person, believing that he is drinking a fluid not only inoffensive, but even agreeable, is all at once surprised by the horrible taste of a poisonous draught? Certainly not. The first effort would be to reject the dileterious substance introduced into the mouth; but notwithstanding this, a certain portion would be retained; and is it not evident, that the presence of so acrid a substance would excite irregular movements, which would carry the liquid, sometimes to the right, sometimes to the left, and sometimes upward, etc.? Those only who have never experienced such an accident, will deny the truth of my observation. Besides, among caustic substances, there is none whose taste is more disagreeable than that of nicotine. I assert, that it is not possible to suppose that the deglutition of such a fluid could be performed in a normal manner. I will also add, what strengthens the doubt I have expressed, that it would not be possible for an individual, after taking nicotine standing, and falling after a short

time upon *his right side*, in consequence of the action of the poison, as has happened in nearly every instance, if not every one, and that in this position of the body the lesions of the tongue or the mouth should be more strongly marked on the right than the left side.*

These reasons appear to me sufficient to show, that *it is not proved* by the scientific documents transmitted to me, that Gustavus Fougnies swallowed nicotine while lying upon his back, with his head turned to the right.

Second Question.—Has nicotine so powerful an odor, that a person might not swallow a certain quantity, believing that he was drinking some other fluid?

I would answer this in the negative. When nicotine is anhydrous, (deprived of water,) and it is very difficult to obtain it in this state, it has a sharp odor, which slightly resembles that of tobacco; if it contains water, this odor is so much the less sensible as the quantity of this liquid is greater. The odor of nicotine when cold, has seemed so feeble to MM. Boutron, Charlard and Henry, who have published a memoir, *ex-professo*, respecting this alkali, in 1836, that they state, that it is, so to speak, *none* at all. (*See Journal of Pharmacy*, 1836.) Admitting that these gentlemen did not prepare nicotine deprived of water, it is nevertheless true, that in the state in which they describe it, it has very little odor. I might quote a majority of writers, who have spoken of nicotine, and show that they are unanimous in saying that its odor has but slight resemblance to that of tobacco; on the contrary, all agree regarding the strong, pungent and disagreeable odor which it exhales when heated, and is reduced to the form of vapor.

Third Question.—Would tartaric acid, which had been mixed with nicotine, modify its poisonous properties?

Yes. Animals, which perish in one or two minutes after taking two drops of nicotine, would not die after taking eight or ten drops

---

* Orfila takes for granted, in the above reasoning, that a person poisoned with nicotine will fall upon his right side, because the animals poisoned in his experiments fell upon that side. But this could only have been accidental—a mere coincidence, and could not, therefore, justify the conclusions drawn from it. Besides, in similar experiments performed by Vandenbrough, Ulemincks and Fallot, the animals poisoned by nicotine fell as frequently on one side as on the other.—TR.

of the same nicotine, if saturated with a slight excess of tartaric acid. They are nevertheless poisoned, for they experience vertigoes, weakness of the posterior limbs, and afterwards vomitings. I do not know for what object this question is offered me; for that reason, I deem it my duty to add, that in the preparation of nicotine by an acid (oxalic, tartaric, sulphuric, etc.), if the process is followed which is generally adopted, the nicotine obtained will not contain more than a slight trace of those acids, because they have been saturated with the potash which has been employed.

Nicotine, extracted from tobacco by tartaric acid, is then as active as that obtained by oxalic or sulphuric acid.

Fourth Question.—Would a liquid containing a large proportion of nicotine, destroy as speedily as pure nicotine; and would it not, supposing it contained a greater or less quantity of the poison, cause death in five or six minutes, in either case producing in the tissues the same appearances as those observed in the body of G. Fougnies?

There exist, with respect to the action of nicotine upon the animal economy, notable differences as to the time necessary to cause death. Nicotine that is properly prepared and free from water, may kill a dog in 30 seconds, but more frequently it does not kill under one or two minutes. When it contains a small quantity of water, and is in that state in which it is most ordinarily obtained, prepared according to the process described by authors, the death of dogs does not take place under three or four minutes. When it contains a little more water, the animals do not perish till eight or ten minutes after the introduction of the poison. It may even happen, that if it is considerably diluted, dogs may recover, after experiencing spasmodic and tetanic convulsions. Every thing goes to prove, that the same is true as regards the human subject. Science needs observations on this point; but one cannot hesitate to believe, that a man may perish in two or three minutes, in eight, ten, twelve, or fifteen minutes, etc., according to the mode of preparing the nicotine, according as it contains more or less water, according to the constitution and strength of the individual, and according to the dose which may have been taken. In all cases, the lesions which nicotine will leave upon the tissues, will be analogous to those which were observed on the body of Gustavus, always recollecting, that they will vary in intensity according to the concentration and dose of the nicotine employed.

Such are the hints which, I believe, the interests of truth make it my duty to transmit to you.

Accept, gentlemen, the assurance of my distinguished admiration.

ORFILA.

NOTE.—M. RASPAIL has objected to the experiments of M. Orfila as inconclusive. He remarks, "the new experiments of Orfila, published in 1828, by no means authorize the conclusions which he and Leseur have drawn from them. For, instead of poisoning live animals, and examining the remains of their bodies several months after, they contented themselves with inclosing vegetable poisons in the entrails of a dog, with or without a mixture of ordinary aliments. Now it is easy to see that, in the midst of these inert and dead substances, poisons may be preserved for a long time without being totally decomposed. But would the case be the same if the vegetable poison had been submitted to the digestive action of a living animal? This is a point which such experiments are very far from enabling us to ascertain, and this was the objection which I brought at the time against the opinion maintained by Orfila."—(*A new system of Organic Chemistry, &c.*, Lond. 1843. p. 522.)

Although we regard M. Raspail as poor authority in matters of science, yet the objection above urged certainly has weight. In the case of Dr. Castaign, indicted for the murder of Ballet, in 1822, by giving him *acetate of morphia*, Orfila, who detected no morphia in the stomach, testified that "the absence of poison in the body might have been due to vomiting, absorption, and the difficulty of detecting it." As the patient lived 32 hours after symptoms of poisoning commenced, although he was supposed to have taken 26 grs., we think it highly probable that most, if not all the morphine, had, in that time, disappeared from the stomach, even independent of vomiting. Failure, therefore, to detect a narcotic poison after death, is not to be regarded as conclusive evidence that none had been taken during life; and the curious fact, discovered by Orfila, that vegetable alkaloids, introduced into the body after death, will resist decomposition for weeks or months after, loses somewhat of its value in medico-legal cases.—TRANS.

PART SECOND.

CRITICAL ANALYSIS.

ART. VI.—*General Pathology, as conducive to the establishment of Rational Principles for the Diagnosis and Treatment of Disease.* A course of Lectures, delivered at St. Thomas's Hospital, during the summer session of 1850. By JOHN SIMON, F. R. S., one of the Surgical Staff of that Hospital, and Officer of Health to the city of London. Philadelphia: Blanchard and Lea, 1852. pp. 211.

THE lectures, which are comprised in this volume, were originally published in the *London Lancet*, from which they have been reprinted, after undergoing "such further correction and extension as the Author's other engagements have allowed him to make. They are twelve in number, and severally discuss—I. *Introductory considerations as to the subject-matter, limits and applications of Pathology.* II. and III. *Blood in Disease.* IV. V. and VI. *Qualitative Derangements and Quantitative Irregularities in the distribution of Blood.* VII. and VIII. *Tumors.* IX. *Scrofula.* X. *Nervous Diseases.* XI. *Evacuative Medicines in relation to Humoral Pathology.* XII. *Morbid Poisons.*

It will be seen, both from the title of the work as well as the several topics considered, that Mr. Simon has set before him a very important task. In the present advanced state of pathological science, its most successful cultivators ought to be able to answer, satisfactorily, the question too frequently asked: Of what practical value is a knowledge of Pathology? However clear it may be to many, not *all* are prepared to admit Mr. Simon's assertion: "undoubtedly practice is successful in proportion as it is based on Pathology; undoubtedly you will save more lives, and relieve more suffering, by striving, diligently and constantly, to establish your principles of treatment on

this scientific foundation." To the profession at large no subject has greater interest or importance than the application of the principles of pathology to the science of practical medicine. As this work emanates from a responsible source, and embraces many of the more advanced opinions of pathologists, we propose to notice it somewhat at length; not so much for the purpose of criticism, as to lay before our readers some of the more recent doctrines in this comparatively new department of Medicine.

The introductory lecture is mainly devoted to the consideration of the words *Science* and *Disease*, or *the Science of Disease*, as embraced in the term Pathology. The distinctions drawn and the course indicated to be pursued in pathological investigations, are of importance to the student who is entering upon this branch of study. With this remark we pass to portions of the work of more general interest.

Blood in disease is treated under the several heads of (1) *Morbid Ingestions;* (a) common and (b) morbid poisons; (2) *Errors of Egestion* and *Excretion;* (a) retention of what ought to be excreted; (b) drain of what ought to be retained; (3) *Diseases affecting the intrinsic Metamorphosis of Blood.*

In considering the nature and office of the fibrin of the blood, Mr. Simon inclines strongly to the opinion of Zimmerman, that it is an "effete material in the way to be eliminated." This view also finds an earnest advocate in Mr. J. Hughes Bennett, whose speculations on the blood have been published in the *Edinburgh Monthly Journal.* We are not familiar with the arguments which the German physiologist has advanced to sustain this doctrine, but presume they are for the most part the same as are here brought forward. They are briefly the following: Fibrin is not diminished, but often increased, by bleeding. In circumstances of exhaustion, weakness and inanition, during diseases essentially anæmic, during violent fatigue, and the like, its proportion has been found as high as in inflammation. Under the same circumstances the red globules, known to be potential elements of the blood, are diminished. There is little or no fibrin in the blood of the fœtus, none in the egg, none in the chyme, and less in the blood of the carnivora than in that of the herbivora. From these facts "the inference seems unavoidable, that it must be considered an excrementitious product derived from the waste of the tissues or the oxidation of the blood, and in progress of elimination from the system. This conclusion, carried into the domain of pathology, would lead us to suppose that an augmented pro-

portion of fibrin in the blood, whether occurring in active disease, or within the limits of apparent health, can be taken as an indication only of increased labor and waste in certain elements of the body, not of an increased development in the resources and nutrition of the blood. And on the same grounds it would appear that a super-fibrination of the blood, in acute inflammatory diseases, must be regarded as a consequence and effect of those diseases, not as their cause, and not as a primary affection."

It cannot be denied that many of these objections to the important office which fibrin has been supposed to hold in the circulating fluid, are forcible and difficult to meet. Able investigators and supporters of the old theory have established the very data from which others derive these objections. But facts occur to us which make this theory not more tenable than that which it is designed to supplant, and forbid our receiving it in "full faith and credit," until it brings to its support other than mere negative considerations. For our present purpose, however, can we ask a better proof of its crudity than Mr. Simon himself has furnished us? In speaking of the ulterior changes of fibrin, he remarks that "its coagulation is its *rigor mortis*, a change which essentially belongs to it as a part of its process of death, a change which befalls it when the whole bodily life ceases." Again he considers it as certain that after its effusion "fibrin may remain stationary, and be nourished; or it may degenerate and decay." In the first condition it participates just enough in the nourishment of the adjoining surface to maintain a "half-vital existence;" in the second it undergoes fatty degeneration, which is its final death and decay." In this explanation of the ultimate changes of fibrin, it is obviously assumed that it is a living material, a vital element of the blood, subject to the laws of life and death. If not capable of organization, still it may be nourished, and may maintain a "half-vital existence," and in its fatty degeneration undergoes its final dissolution. If an excrementitious product derived from the waste of tissues, or the decay of the blood itself, how can it be considered capable of being nourished when effused on the surface of membranes, or of undergoing the process of decay and death?

Mr. Simon does not consider it an established fact that fibrin is unsusceptible of ulterior development, yet to such a conclusion his investigations strongly incline him. The following is his opinion of the office, which fibrin performs in the regeneration of tissues—an office though menial in comparison with the rank once given it, quite incompatible with the doctrine of its effete or excrementitious nature.

"So far," he remarks, "as my knowledge extends of adhesive inflammation, and of the several reparative processes, I see no evidence that fibrin takes a more important part in them than that of holding the true albuminous blastema within its meshes, and thus occasionally serving as a provisional matrix and scaffolding for the development of cells, fibres and blood-vessels."

Among the evil consequences of an *over-fibrinous* condition of the blood, are mentioned the vegetations formed on the valves of the heart in certain diseases. These, Mr. Simon thinks, have been too hastily called the results of inflammation. He would rather regard them as depositions of the fibrin of the blood passing over them, mechanically produced. For he doubts if the lining membrane of arteries is even susceptible of inflammation: 1st, because it has no blood-vessels of its own; 2d, the vasa vasorum do not penetrate to a sufficient depth to influence materially its nutrition. Hence he concludes, "it seems almost certain that the ordinary nutrition of the lining membrane of the circulating system is derived directly from the blood with which it has contact; and that its morbid changes depend—not on any inflammatory condition due to the *vasa vasorum*, but on those humoral changes, those variations in the qualities of the blood, by which it is more immediately and more certainly affected than any tissue of the body."

The opinions here advanced are of such practical importance as to justify an extended quotation. He continues: "I believe that the origin of these vegetations is directly humoral; that they arise as fibrinous precipitations from an overcharged solution; the valves incrusting themselves with fibrin, just as a stick in certain streams coats itself with a calcareous envelope; and that the preference shown for the left side of the heart admits of explanation by reference to the peculiarities of its contents—the new-made arterial blood."

To prove that arterial is more prone than venous blood to precipitate its fibrin, he has experimented by carrying a single thread through an artery and a vein transversely, and allowing it to remain twenty-four hours. The uniform result proved that "the arterial blood with the utmost readiness deposits its fibrin on the thread; the venous blood with the utmost reluctancy." The masses deposited upon the thread from the arterial blood resembled entirely the vegetations found on the valves of the heart, a single deposit being sometimes of the size of a grain of wheat, "always of a pyramidal shape, with its apex down stream, and its base attached to the thread."

In the vein the thread operated as a simple obstruction, not becoming coated with fibrin but interrupting the circulation with a black clot on its distal side. From this it follows that,

"The disease in which these deposits are so frequent, is one of intense over-fibrination of the blood, and one in which almost certainly there are other conditions besides *quantity*, making the fibrin easy of precipitation; the left side of the heart has preference, because it is the arterial side, and because arterial blood, as we have seen, readily parts with its fibrin; the valves, and particularly their streamward surfaces, are chosen for the deposit, because their position exposes them chiefly to the friction of the current; so that the whole curious selection of site for the deposit resolves itself into the concurrence of two conditions, which are fulfilled in that one spot of the vascular system—namely, the greatest chemical tendency to the deposition of fibrin, with the greatest mechanical facilities for its entanglement."

"In introducing this subject, I mentioned that it was one of great practical importance. Many people bleed locally, or even generally when they hear an endocardial murmur arising in the course of rheumatic fever. In their eyes, the new disease is endocarditis: and every thing ending in *itis* is thought, in at least a majority of instances, to be benefited by bleeding. Therefore, gentlemen, do not be in a hurry to call it endocarditis; and as for bleeding, all I would venture to say (for of course the treatment of this physician's disease don't fall within my province), is to assure you of the pathological fact, that you may bleed a patient to death, without altering (except probably to increase) the proportion of fibrin in his blood."

The treatment of acute diseases, in the course of which endocarditis is likely to occur, should be, according to this view of its pathology, with remedies which will be taken into the circulation, and act as solvents to the fibrin. One of the most powerful of this class is nitrate of potash, which, if taken in large doses, a certain amount will be retained in the blood, and prevent those fibrinous concretions, by increasing the solubility of their material. This remedy, in acute rheumatism, is highly praised by M. Bonnet, of Lyons, who believes with M. Gendrin, that it prevents inflammation of the endocardium.

Passing from the *qualitative* derangements to the irregular *quantitative* distribution of blood, we have an interesting discussion of the proximate cause of hypertrophy and inflammation—processes which involve the same condition of the blood-vessels. The initiatory step, or first change which occurs, in an inflaming or overgrowing part, and which leads to its becoming loaded with blood, is believed not to depend upon nervous influence, "but is a direct change, operated by the living molecular structure of the part on the blood which

traverses it, or on the vessels which convey that blood. "Ubi stimulus, ibi affluxus" will stand, then, as a law of reciprocal relation between the solids and fluids of the body, which does not of necessity require the intervention of a nervous system for its initiation."

The first "momentum of the process" being settled, the second condition, or the enlargement of the blood-vessels, to accommodate the increased flow of blood, is referred to the nerves as agents. Mr. Simon adopts the theory of Professor Henle, that the law of reflected stimulation, when applied to the muscular coat of arteries, is reversed; and, instead of producing contractions, as in the case of muscles in general, causes relaxation. This condition of *reflex-relaxation* is comparable to paralysis, and is the very opposite of the opinion that Mr. Simon thinks generally prevails among British physiologists, viz., that in inflammation and hypertrophy, the arteries of the affected part act more vigorously, receiving whatever amount of blood the local changes may require, and propelling their contents with greater energy. In the present imperfect state of our knowledge, he deems it rash to offer "any complete pathological theory of the origin and progress of the inflammatory and hypertrophic processes," but the following are his "*probable* conclusions in the matter."

"1. In the chain of events which terminates in hypertrophy or inflammation, the first act relates to the influence exerted by the elements of the part on the materials of the blood circulating through it, and consists in an alteration (perhaps in hypertrophy only a quantitative alteration, possibly in inflammation also a qualitative alteration) in those changes which the part naturally works on the blood, as the indispensable condition of growth. The growing elements of the part, hurt by physical violence, or affected by extremes of temperature, or thrown into rapid chemical changes, or overburdened with their own specific stimuli from the blood, strive to grow more, or to grow differently, than in their previous state. The sudden origination of this effort (as it occurs, for instance, after mechanical injury) suffices apparently in itself to derange the currents of the capillary circulation, to flood the tissue with serous exudation, and to lead to those microscopical phenomena which are considered pathognomonic of inflammation.

"2. The condition of a part in which the organic changes are thus accelerated (whether in the form of hypertrophy or inflammation), is capable of inducing, in the muscular arteries which lead to it, a state of enlargement or increased perviousness, which determines to the part a larger afflux of blood; and it is in a high degree probable that the manner in which this enlargement occurs, is according to what we technically call *reflexion;* that a certain impression from the part is conveyed centripetally by its sensitive nerves, and is responded to by a return-current, is to induce a relaxed condition of

those muscular fibres which regulate the calibre of the artery, and by this relaxation to suffer an increased transit of the blood to the inflaming or overgrowing part."

We are by no means satisfied with Mr. Simon's reasoning upon this point; it has too much the character of mere theorizing. It is a positive absurdity to speak of the reflex-relaxation of arteries in hypertrophy, and of their reflex-contraction in atrophy: for the author remarks that the "same line of argument would lead us to suspect that organs in a condition of extreme inertia and unchange, may originate centripetal impressions which would conduce, through nervous influence, to reflex-contraction of the artery." There is no necessity for this special and anomalous endowment of the nervous system to explain the phenomena of inflammation or hypertrophy. It has been proved beyond a query, that the muscular coat of arteries is supplied with nerves, that they regulate the calibre of vessels in their physiological and pathological state; that the primary effect of stimulation is contraction of the artery, and the secondary, dilatation. Weber witnessed this contraction in the use of galvanism; Wharton Jones, on the application of a solution of common salt to the web of a frog's foot. (*Guy's Hospital Reports*, Vol. VII.) Mr. Simon has repeatedly seen the same. Weber also observed that when the galvanic current was too powerful or too long continued, the artery lost its power of contraction for a time, and yielding to the pressure of the circulation, presented an aneurismal bulging. Applying these facts to the process above referred to, and we have as the first result of irritation contraction of the arteries; as a second, their dilatation. The latter may be comparable to paralysis, but it is rather an *actual* than an *active* paralysis, as Mr. Simon would regard it. The analogy of muscular contraction and relaxation in general, would force upon us such conclusions; and we should regard it not less unphilosophical to attribute the relaxation of any muscle following its contraction to a reflex-relaxation, than in the case of the dilatation of an artery after *its* contraction. Nor are we prepared to admit the influence of molecular change (a vague term) among the antecedents of inflammation or hypertrophy. Waste and supply in the animal economy, it is true, are balanced, but this does not imply that the former determines the latter. On the contrary, in many if not in all instances, these two conditions seem to exist independently of each other, as regards cause and effect, both states being determined by a third cause. The irritant which excites the inflammatory changes in a part, also induces the increased flow of blood to or

through that part by its effects on the blood-vessels, as already stated. The same vigorous exercise which determines an increased waste of tissue in the hypertrophied heart, or the blacksmith's brawny arm, impels larger and more rapid currents of blood along the arteries distributed among the muscles of that heart or limb. We are therefore inclined to the opinion, that molecular change is altogether a secondary act both in inflammation and hypertrophy, and bears no causative relation whatever to the initiatory stage of either process.

The two following lectures devoted to *tumors* present, in a narrow compass, a fair abstract of our present knowledge on this subject. They, of course, fall far short of the very elaborate series of lectures more recently delivered by Mr. Paget, before the Royal College of Surgeons, to which we would refer all who wish to study this interesting class of surgical affections in a truly scientific manner.

After dividing tumors according to their histological characteristics, and treating them individually under these several heads, Mr. Simon proceeds to a new classification for the purpose of analyzing his subject in a more practical manner. The first class are *tumors by accumulated secretion*, and may arise from a redundant secretion in vesicular structures, or from mechanical retention of secreted material in follicular structures. The second class are characterized by a *partial hypertrophy*, and consist in an over-development of a particular solid structure of the body, but being limited to a portion only of the tissue invaded. To this class belong tegumentary tumors, whose characters essentially are *skin in excess;* vascular tumors, as the nævus, consisting of *vessels in excess;* and fatty tumors, which may be identified as *adipose tissue in excess.* The third class are tumors of *adjunctive hypertrophy* or *hypertrophy by apposition*, such as the bony and fibrous tumors. This class differs from the former in being adventitious instead of interstitial. These three classes of tumors are local in their origin and development, and are cured by removal. The fourth class are *cancerous* growths, and a few points of interest in respect to them only, shall we have space to notice.

Mr. Simon regards the evolution of a cancerous tumor in the body as marking a new state of things in respect to the patient's total organization and vitality, "just as much as the first acting of the kidneys in the embryo and of the lungs in the infant respectively mark new eras in the animal's progressive development." He thus defines cancer:

"Substantially it is a new excretory organ. Under the pressure of some mysterious constitutional necessity, a growth arises

which (in its typical form) tends essentially to acts of eliminative secretion, just as distinctly as the healthy liver or the healthy kidney." "It consists essentially in the establishment of a new vent; a new organ of elimination, and that organ developes itself according to the type of other secreting organs; it developes itself as an apparatus for the formation of deciduous cells."

No single point is more strongly urged throughout this work than the constitutional nature of cancer, and yet our author proceeds to speak of the different methods by which this disease may extend itself to other organs and tissues, and *contaminate* the system. The first is by *immediate contact*, as in continuous or in contiguous surfaces; the second, by *intra-vascular development*, which depends upon the entrance of cancer-germs into the circulation through some lesion of the veins; the third, by *continuity of blastema*, and is effected by the lymphatic canals. It is obviously improper to limit the propagation of a strictly constitutional disease to any or all of these different methods, or indeed to speak of its propagation at all in the same system. If a local affection, it may extend to other organs, and finally contaminate the whole system; but, if constitutional, its localization is accidental and not essential, and its appearance in several organs consecutively, does not imply propagation by any of the above methods. The question of the constitutional nature of cancer is not by any means so definitely settled in the profession as in Mr. Simon's own mind. At a recent discussion in the *French Académie de Médécine*, most of the practical surgeons of Paris, including Blandin, Gerdy, Roux, Amussat, Berard and Lisfranc, maintained that this disease was at first local, and that the cachexia was induced by absorption from the morbid growth. (Dr. BENNETT, *Monthly Journal*, 1847.) In this country surgeons generally take the same view of the subject, and recommend extirpation in the early and uncomplicated stage.

It is a little surprising that Mr. Simon should limit the propagation of cancer by intra-vascular development to a system already suffering from the cancerous cachexia, and deny that there is any evidence or even probability "that the same transferability of the disease relates to any other organism not under the influence of the specific cachexia." He does not inform us who first proved this mode of propagation, for Mr. Simon is chary of authorities, but, we doubt not, he had in mind Langenbeck's experiments. This physiologist injected first the secretion of a cancerous ulcer into the veins of dogs, and found that it produced lobular abscesses. He next injected the expressed fluid of a non-ulcerated medullary tumor, which had been recently extirpated; the animal suffered intense dyspnœa, but sur-

vived, and after a time was killed. The lungs were found to contain small tumors, identical in general properties, and also as respects elementary cells, with those of the tumors in question. (HASSE'S *Path. Anat.*) This experiment on which rests the opinion that the veins are efficient in the propagation of cancer, also proves that a system free from the disease may become inoculated, and presents a most stubborn argument in favor of the local origin of cancer. We would add that this experiment has since been unsuccessfully repeated, and that it failed in the hands of Vogel. Dr. Leidy, of Philadelphia, has recently instituted a series of experiments which go far to prove the inoculability of cancer. He introduced a slip of encephaloid cancer, taken from the dead body of a female, thirty-six hours after its removal, under the skin of the back of a frog. After a time he exhibited this frog, still living, to the members of the *Phil. Acad. of Nat. Sci.*, and, on making an incision through the integuments, the fragment of cancer was discovered to have formed a vascular attachment with the skin, and to be itself of a fine red color from the net-work of capillaries traversing it. The mass had not increased in size, and many of its structural cells were unchanged, while others had become broken down. Dr. Leidy was of the opinion that, if fragments of cancer when introduced into cold-blooded animals still continue to live, when introduced into warm-blooded animals they would most probably continue to grow. (*Proceed. of Acad. of Nat. Sci.*, Phila. 1851.)

As respects the pathological relations of the different forms of cancer, Mr. Simon regards encephaloid as its higher, and scirrhus its lower, manifestation. Compared in their mutual relations they are the cell-forming and fibre-forming sequels of inflammation; "the intenser inflammatory acts, running into the pure cell-forming process of suppuration, while the less intense inflammatory acts deviate into the slower construction of fibre." Encephaloid represents the highest, and scirrhus the lowest degree of malignity. The proportion of the neucleated fibrous material therefore measures the intensity of the cachexia; the "fibrous transformation, so far as it extends, illustrates the operation of common, not of specific, developmental influences in the part. So with regard to those compound granular corpuscles, constituting the yellow softening material in cancerous growth, there seems no difficulty in adopting the view (lately urged by Virchow), that these bodies represent the degeneration of cells, and consequently, *cæteris paribus*, evince a retrogressive tendency in the effusion where they occur. If we may consider these

points as established—that fibre, *quoad* its existence and quantity, illustrates an abortion of the cancer growth—that compound granular cells, *quoad* their existence and quantity, illustrate an exhaustion and retrogression of the morbid influence, we possess some material in pathology (although not always applicable in practice) for guiding our prognosis as to the probable recurrence of the disease."

We may notice in connection with this reference to Virchow, the opinions entertained in regard to the spontaneous curability of cancer. Hodgkin and others have observed its transformation into ossiform matter. Dr. Bennett has examined specimens from the human subject of the same character. Prof. Bochdalek, of Prague, in a memoir "On the Healing Process of Cancer in the Liver," describes cancer of this organ as breaking down into a cream-like matter, the fluid portions becoming absorbed, and the remainder shrinking together, and often corresponding to a fibrous or fatty mass, containing collapsed cancer cells. He has observed cicatrices in all stages of formation, and even instances of cancer in one part of the liver, and cicatrices in another. He has found these evidences of the degeneration of cancer as often as six or seven times in every sixteen or seventeen cases of cancer of the liver. (BENNETT'S *Art. Op. Cit.*)

The idea of *curing* cancer, however, by a surgical operation, Mr. Simon characterizes as absurd. "Surgery, perhaps, at times gets the credit of cures which nature had already achieved; and sometimes, perhaps, owing to blunders and uncertainties of diagnosis, the non-return of cancer after operation has depended on its non-existence before the operation—on the supposed cancer having been a fibrous or sero-cystic tumor, or some mere inflammatory swelling." But there is a certain latency or chronicity in its development, of which the surgeon may take advantage to check its progress. If the entire cancerous structure be removed, and no cells remain either at the original site of the growth, or in any of the neighboring glands, a certain period will elapse before the disease will manifest itself again. And for this reason, cancer "requires a cell-growth for its purpose, and it is at the least doubtful whether it can avail itself of any normal cell-growth in the body; whether it can *cancerize* any existing cells, or whether it must not start *de novo*, and begin by organizing a set of cells for itself." The construction of this cell-growth requires both time and intensity of cachexia; and before the system will proceed to the formation of another eliminative gland *de novo*, will tolerate a considerable degree of whatsoever conditions form the cancerous diathesis. Hence "the whole tact and discrimi-

nation of the surgeon in deciding whether an operation may probably lead to the patient's relief, have to be brought to bear—first, on determining the total absence of any secondary deposits, or any irremovable extension of the growth which might serve as a centre of new development; and secondly, on measuring the intensity of the constitutional cachexia." In a clinical lecture on "*Operations for the Removal of Cancer*," delivered within the present year, and published in the *London Lancet*, Mr. Simon remarks at length on the indications for the resort to the knife in the treatment of this disease. They principally belong to the second consideration, or the intensity of the constitutional cachexia. First, and most important, in estimating this condition is the *rate of increase*. Encephaloid is generally, but not always, the most rapidly developed. A case of scirrhus of the breast is mentioned, which ran its course in *eight weeks*. The rule which he advances is, that the "chance of doing good by the removal of a cancerous tumor, as compared with others of the same species, will be in inverse proportion to the rate at which the tumor has grown." The second point of inquiry is in regard to the amount of *inherited liability* to cancer: hereditary taint is estimated to exist in one-seventh of the cases where cancer occurs. The third circumstance to be considered is the *form of cancer*. Certain forms always recur, as encephaloid of the eye, and probably equally the same is true of encephaloid of the testis. That form of cancer on which he operates with the least hesitancy, is of the *epithelial* kind, as it affects tegumentary tissues, always keeping in view, however, the state of the glands. For even this form of cancer, representing the minimum of the true cancer-growth, and for which ordinarily severe operations may be undertaken, is no exception to the rule of refraining to operate when secondary deposits exist.

We make the following extract from the Clinical lecture above referred to, in respect to the age of a cancerous growth at which it is most desirable to operate.

"There is a strong popular impression in favor of early extirpations, but I must say that this impression seems to me to have been hastily formed, and that it cannot be received without qualification. In the epithelial form of the disease, indeed, I do think it desirable to operate as soon as I am satisfied as to the nature of the growth, partly because of the greater degree in which it may be considered a local disease, partly because of the marked difference in its course which is made by any contamination of the lymphatics—an evil which delay would render more probable; but in the other sorts of cancer I am by no means equally persuaded of the advantages gene-

rally ascribed to early operations. It would require very copious statistics, which we do not yet possess, to speak with certainty on the point. I will only venture to say that I entertain grave doubts as to the practical expediency of extirpating solid cancerous tumors in early stages of their progress, and that some of the quickest and most fatal relapses which I have witnessed, have been cases thus operated on. My impression, both from pathology and practice, is rather that, for a majority of cases, one might best economize the life of one's patient by deferring the operation till special circumstances (extreme pain or impending ulceration) should make it imperative; thus suffering the constitutional disease to exhaust itself as far as possible in the organ which one meditates removing."

Our author looks to chemistry for a knowledge of the rational treatment of cancer, "for pathology distinctly traces a chemical function in the disease." We must have a comparison of the total chemistry of the cancerous body, with the total chemistry of the healthy body, and such investigations as will found themselves "on an exact and comprehensive knowledge of those natural changes which occur in the progressive and regressive metamorphoses of the blastema of the blood." Until such investigations are made, we must give up all hope of cure, or resort to speculative and empirical treatment.

Mr. Simon limits the term *scrofula* to such diseases as are "essentially associated with tubercular deposit," believing that at present "there is no evidence to justify us in extending to other diseases the particular formula which includes the pathology of tubercle;—this, namely, that under the influence of a constitutional bias, which is peculiarly susceptible of hereditary transmission, and peculiarly difficult of artificial generation, there occur local deposits of an organic material, which is insusceptible of ulterior development." Scrofula may be associated with general debility and defective nutrition, but this is accidental, not essential, and is incapable of hereditary transmission. He does not deny that it is artificially producible, but believes that its producibility by experiment has been greatly overrated. The most important condition in the experiment is change of climate; without this its production in any one generation free from taint amounts almost to an impossibility.

On this subject we have the following interesting remarks in regard to the development of tubercle in the liver of rabbits poorly fed.

"Four or five years ago, when I was busy with experiments on this subject, I received from a friend the so-called tubercular liver of a rabbit; the deposit was white, not very firm in any part, and in some spots diffluent. It extended in several directions throughout

the thickness of the organ, reaching its surface, and bulging it at various points; but there was something in its appearance which struck me at first sight as unlike tubercular deposit; it appeared continuous in lines, rather than in masses; it seemed to branch, too, in the direction of the ducts, as though it were dependent on their anatomical arrangement. I proceeded to examine it with a high power of the microscope, and found, to my astonishment, that the whole mass consisted of the minute oblong eggs of some entozoon."

The examination was frequently repeated, but always with the same result, these ova being found also in the gall-bladder, in the whole length of its intestinal canal, and in some places following the inflections of the mucous membrane, and lining its follicles almost like epithelium. On close examination, the alleged tubercular deposits in sheep, cats and dogs, prove to be instances of parasitic development, or of some morbid product foreign to human tubercle.

The following views of the pathology of tubercle will be read with interest:—

"The material products of the scrofulous diathesis, consist in some mis-developed poteinous ingredient of the lymph and blood. The essence of this mis-development lies in the fibriniform solidification and concretion of something which should remain fluid in the plasma of the blood. I call it *fibriniform*, because, though it is not identical with fibrin, it probably arises in some analogous method of formation, and undergoes similar final metamorphoses. This solidification occurs in the ascensive development of the lymph and blood. It occurs with an infinite preference in the lymph-glands and in the lungs. In the former, where lymph is brought into intimate relations with arterial blood; in the latter, where lymph (which is constantly accruing to the blood) first comes into immediate relations with the atmosphere. It seems, then, to affect the total blood, only by reason of the lymph which is contained in it; in other words, not to be a disease of the total blood, but one of the lymph or nascent blood. Precipitability by the atmosphere is the characteristic of this morbid product: its places of election are determined by this peculiarity. Tubercles form where lymph and blood get their first opportunities of increased oxidation. In accordance with this law, venosity of the blood precludes the tendency to tubercular deposition. The fibriniform produce of scrofula is insusceptible of development—it is a dead concretion. Like true fibrin, it may become the seat of calcareous deposit, and may thus form a permanent inorganic concretion. Like true fibrin, it chiefly tends to soften, and its softened substance is copiously infiltrated with fat; probably it undergoes a fatty degeneration, either of the substance of other organs, or of some previous infiltration in those organs. Possibly this tendency may indicate that the fibriniform material of tubercle, in its molecular state, can undergo, either in the blood or in those organs, the same degenerative

changes as affect it in its concrete condition. In short, the scrofulous diathesis consists in an inherited peculiarity of blood-development, under the influence of which, the nascent blood tends to a molecular death, by super-oxidation. Partly it may appear, that these dead poteinous elements can undergo, within the stream of the circulation, such degenerative changes as will qualify them for discharge by excreting organs: partly it may appear, that these changes lead to fatty accumulations in the endothelium, or in the parenchymatous bastema of such organs; but mainly and characteristically, it is the way of those dead proteinous elements, to concrete in the organs where their precipitation has been determined, and there to construct the fibriniform masses called *tubercle*. These masses undergo changes of doliquescence and destruction, which tend to their ultimate expulsion from the system, but which, as they entail the disorganization of all surrounding textures by inflammatory and ulcerative processes, are commonly defeated in this tendency when they occur in vital organs (as the lung), or attain it by the complete sacrifice of the invaded organ, as when present in lymph-glands, testicle, or breast."

In respect to tubercle in the lymph-glands, Mr. Simon advances the opinion once held by Andral (*Path. Anat.*, Vol. II.), that it is not a deposit from the blood-vessels, as elsewhere, but an accumulation in the tubes of the gland of their own morbidly coagulable or inspissated lymph, and is therefore not a disease of the gland, but of the lymph of the gland. This view, however, is not well considered; for anatomists have frequently observed that mercury traverses the lymphatics freely when injected into glands affected with every degree of tuberculization. Mr. Böeker always found it possible to inject tubercular mesenteric glands with mercury, their lymphatics being quite permeable.

Mr. Simon contends for the incompatibility of tubercle and cancer, for "they are pathological antitheses in regard of the blood." In tubercle, "the blood dies still-born; it never attains its maturity of growth or function; it stops short of the distributive arteries of the body; it never reaches the aorta; it perishes and decays on the threshold of the circulation. In the contrary case of cancer, there is obstinate excess of vitality, which will not be quenched." Nevertheless we are satisfied that he is in error, for in several instances we have demonstrated the existence of these two forms of disease in the same subject. But we have the high authority of M. Lebert, who denies that these two dyscrasies exclude each other, and publishes several cases to establish his position. A *Memoir upon the Coincidence of the Tubercular and Cancerous Diatheses, with Scrofulous Symptoms*, by Dr. A. LEGRAND, translated from the French, and

published in the fifth Vol. (N. S.) of this Journal, will be found very conclusive upon this point, as it contains a number of accurately reported cases. Dr. Walshe also (*Disease of Heart and Lungs*) says, "the existence of cancer in any organ is unfavorable to the presence of tuberculous disease; but tubercle and cancer *may* coexist, even in the same lung." Mr. Ancell, in his recent very elaborate *Treatise on Tuberculosis*, sustains the same view.

On the treatment of scrofula our author is necessarily brief, for he has nothing new to offer. Cod-liver oil may prove beneficial from its alleged influence over the "initiative acts of blood development," but at present it is a matter for continual observation.

Impressed with the belief that a relative venosity of the blood opposes the development of tubercle, he considers change of climate from a higher to a lower latitude very important, as tending to produce this condition of the blood by the respiration of a more rarefied atmosphere. Statistics, however, have long since demonstrated that elevated temperature is of minor importance in the selection of a climate for the tuberculous. From the British Army Reports we learn that, in the West Indies, the proportion of soldiers attacked with phthisis annually, is doubly those stationed in England. So much more favorable, indeed, is the climate of Canada than the West Indies, or even England, to the consumptive soldiers, that the British authorities send this class of persons from the latter to the former country as affording them the best chance of recovery. The proportion of deaths by phthisis in London, is nearly four times as great as in Sweden. The same is true of our own country, phthisis being most prevalent among our soldiers in Southern latitudes, least in Northern inland regions.

We shall bring to a close our notice of this work with some extracts from the two concluding lectures. The following are Mr. Simon's conclusions in respect to the pathology of *Excretions*.

1. "One organ can excrete for another only such materials as are common to both. All organs can excrete water, and perhaps certain salts, for one another. Thus far—*i. e.*, in respect of such materials as are common to both—one organ may be said in health to antagonize another, or in disease to act vicariously for another, but no further. There may be a sanguineous derivation from one to another, but not a substitution of activity.

2. "To a very limited extent, certain retained excretions may undergo in the blood a chemical change, which brings them within the means of appropriation of some other organ than that to which they specially belong; thus, in the experiments I cited, urea for a time seemed to be excreted from the system by the mucous mem-

brane of the stomach—not, indeed, as urea, but as carbonate of ammonia; thus, again, carbon and hydrogen, when incapable of passing off in their respective gaseous combinations, seem liable to be secreted as fat.

3. "By means of drugs having special organic affinities, such as cubebs for the kidney, elaterium for the intestines, arsenic for the stomach, we are able, almost indefinitely, to produce and accelerate, in the excreting surfaces of the body, certain changes which tend, in each case, to eliminate the particular drug with more or less aqueous exudation, but which fail to augment, or, at the utmost, only momentarily augment, the discharge of material specific to the surface. And,

4. "As these accelerated molecular changes always involve the occurrence of artificial hyperæmia, so we may expect, and we do really find, that excretions thus abnormally excited will always contain evidence of the congestion we have induced, presenting (just like inflammatory effusions) the several grades of albuminous admixtures, to which presently the fibrin of the blood, and, subsequently its colored particles, are added in increasing proportion."

Guided by these results our author teaches that evacuative medicines, in humoral diseases, avail nothing. The materials which humoral diseases prepare in the blood for excretion by any given surface or organ, are more efficient stimulants of that surface or organ than any we can administer. Against that which is specific in the malady, our diuretics, purgatives, diaphoretics, &c., are powerless. They may establish counter-irritation to the relief of the inflamed and over-tasked organs, but in their nature or action they have no efficiency in hastening the elimination of the "peccant humors." We must look deeper into the action of drugs for therapeutical influence over the cause of humoral disorders. Our remedies must not be such as expend their force on any particular organ or secreting surface, but on the blood and tissues, accelerating or retarding that metamorphosis of their material which, sooner or later, furnishes the elements of discharge.

The only drugs which as yet he is satisfied hasten the dissolution of certain materials of the blood, are mercury and antimony. These, when introduced into the circulation, "represent exactly the phenomena of true humoral diseases; they effect or hasten a definite metamorphosis in the blood, under the influence of which the materials for excretion become sensibly increased; they do not stimulate the organs on which they act by means of any specific affinity between those organs and themselves (as cubebs stimulate the kidney), but excite their actions indirectly, evolving for their use, from the elements of the blood, a larger proportion of that which it is their normal function to eliminate." Of those remedies which, on the contrary, retard

these changes in the blood, little is known. Dr. Böerker found in his careful experiments that the effete products of the body diminished under the use of wine, sugar, and coffee, and it is probable that tonics act by opposing destructive changes in the bloods.

Another point of practical interest, in respect to which however we have but the merest hint, is the detention in the blood of some *materies morbi*, which requires for its excretion to combine with some other definite material. Several years since, Dr. Bence Jones remarked the striking deficiency of phosphates in the urine of persons suffering delirium tremens. A case of this disease came under the observation of Heller, in which lime-water happened to be given as the remedy; he observed the fixed salts of the urine rise immediately from 4.60 per 1000 to 13.2, the phosphate of lime having increased nearly eight-fold while the extractive matters fell from 22.66 to 10.1. "In considering this case," remarks Mr. Simon, "it is difficult to avoid the conviction that the lime supplied a condition, which was previously absent, for the elimination, perhaps even for the formation, of other ingredients, and that the deficiency of phosphates must have been accidental, and secondary to that absent condition which the lime-water supplied." Without attaching too much importance to this particular instance, it indicates the direction for future inquiry into the operation of other remedies and into the means for treating humoral diseases.

Mr. Simon is no believer in the *parasite-theory* of Dr. Holland, or the *fermentation-theory* of Liebig, as explaining the nature or action of *morbid poisons*. He considers their phenomena *sui generis*, although chemical. Probably they belong to that class of chemical actions called Catalytic; but even in this case, they constitute a new species. But what is that constituent of the human blood, out of which the diseases of animal infection are capable of being developed? Not the blood corpuscles or the albumen, for these ingredients of the blood are so essential to life, that their temporary transformation would be fatal; neither do they show any alteration after death by zymotic diseases: and finally, one attack of any particular disease would never confer immunity, if to this end it were necessary that these materials should be exhausted. The same line of argument would exclude the salts. We have now only the fibrin and extractive matters left of the sensible constituents of the blood, and it is precisely these which, representing the "waste of the tissues," Mr. Simon is disposed to regard as affording the materials for the action of the several morbid poisons. This theory is founded, of course, on the

view formerly taken of the effete nature of fibrin, and the following is his reasoning on this subject, which, at the least, has the merit of ingenuity:—

"In the first place, they are matters already in progress of decay, and therefore eminently susceptible of new modification; in the second place, they are inessential to the nutritive processes, and that removal of them from the system, which would give immunity from re-infection, might be accomplished without withdrawing a vital ingredient from the blood: in the third place, only of such matters as these can it be said, that some of them occur but once in life. In infancy, in early age, and till puberty, there are certain waste materials, which never afterwards occur; the temporary cartilages have to waste away, the thymus gland has to decay, peculiar changes referable to the sexual system have to be accomplished, and the effete products of these changes have to be eliminated from the system. And fourthly, notice that the surfaces and organs most prone to affection in the diseases under consideration, are those which are eliminative and defecating; those whose normal products can hardly be retained for any time within the body, much less out of it, without undergoing a fetid decomposition, which sufficiently stamps them with an excrementitious character. Bowels, skin, kidney, tonsils, are the favorite resorts of the several fever-poisons, just as they are the surfaces by which, naturally, the organic waste of the several tissues is eliminated."

"On inquiry, it might appear that the relations of infective material to these natural products are definite and constant; that one—let us, for instance, say syphilis—would stand in the particular relation to fibrin; it would be obvious that such an one would be of almost universal inoculativeness, and could only for a very short time, if at all, exhaust the patient's susceptibility to re-infection; and that a drug having certain relations to fibrin (mercury, for example) would interfere with the affinities established by the disease. It might appear that another material, having its origin in the organic waste of nervous substance, would constitute the liability—say to typhus; such an origin would almost fix the circumstances increasing our proneness to that disease, as well as prefigure the symptoms attending it. Of another material, it might appear that it originates in the infantile decay of temporary cartilage, or of thymus, a decay occurring only once in life; that such material would constitute the susceptibility to measles or hooping-cough, a single attack of which commonly exhausts the patient's susceptibility for ever. Of a fourth material, it might appear that it arises in those changes of blood which attend the inflammatory and reparative processes, under direct atmospheric influence (as in open wounds, cutaneous or mucous), and that in such a product would consist the humoral liability to erysipelatous infection and to puerperal fever."

We need hardly add, that these examples are not intended as

pictures of what actually occurs, but only as illustrations of the author's meaning.

The principles of treatment deducible from this analysis of the pathology of morbid poisons, were mainly stated in the preceding lecture. It is important, however, to add, that since in the present state of our knowledge, we are unable too often to meet the true indications; "to check the further conversion of material in the blood, to destroy the poison, or to turn it into harmless combinations; to aid or to anticipate the eliminative efforts of the disease;" our efforts should be to moderate local phenomena and sustain the system. "Till you can neutralize the poison of typhus, of erysipelas, of scarlatina, within the blood of your patients, as you would neutralize an acid, or an alkali in a test-tube, never lose sight of this important principle; never forget that these morbid poisons are eminently depressive to life, that they tend to kill by shock and debilitation."

Mr. Simon premised in his introductory lecture, that the results of pathological investigation, so far as they relate to Therapeutics, were as yet of a *negative* kind. That Pathology has taught us what we could not do, and served to dispel many illusions in regard to the supposed efficacy of certain remedies in certain diseases. The perusal of his work, if we were to adopt his reasoning and conclusions, would painfully convince us of the truth of this assertion. Such conclusions may be satisfactory to the scientific man, but they are most disheartening to the practitioner. Already conscious of the weakness of the instruments of his warfare, he casts about him for others more efficient. He seeks from Pathology *affirmatives*, but it teaches only *negatives*, and in effect disarms him of the weapons on which he has long trustingly, but perhaps vainly, relied. But our author looks hopefully forward to the future career of pathological science, and so do we. Aided by the microscope and organic chemistry, we doubt not that it is destined to revolutionize our system of Therapeutics, by establishing a "specific treatment of each diathesis, founded on an exact knowledge of the physiological laws of its manifestations." If hitherto its efforts have been expended in the demolition of favorite theories and cherished opinions, it is that it may remove the rubbish which "blundering quackery" has been for centuries accumulating, and lay broadly and deeply the foundation on which it is commissioned to rear the beautiful temple of RATIONAL MEDICINE.

S. S.

BIBLIOGRAPHICAL NOTICES.

ART. VII.—*A System of Operative Surgery; based upon the practice of Surgeons in the United States, and comprising a Bibliographical Index and Historical Record of many of their Operations, during a period of two hundred years.* By HENRY H. SMITH, M. D., Surgeon to the St. Joseph's Hospital; Assistant Lecturer on Demonstrative Surgery in the University of Pennsylvania, etc., etc. Illustrated by numerous Steel Plates. Philadelphia: Lippincott, Grambo & Co. 1852. 8vo., pp. 698, with 80 colored plates.

IN the eighth volume of the new series of this Journal we called the attention of our readers to the first two parts of this work. It was there said that this belongs to a class of works much needed in our medical literature. In this opinion we have become more and more confirmed by the time which has elapsed and the opportunity which has been afforded us to examine other portions of the work. Dr. Smith has rendered the profession at least signal service in the preparation of it—that he might have rendered still more signal service by consulting still other portions of our literature than those he has evidently consulted, we firmly believe. There are important operations and even capital operations, which have been performed by American surgeons a long time previous to the commencement of the present century which have, from their importance and results, gained admission into foreign publications and the operators an European reputation, which deserve and ought to have received notice somewhere in this volume. But it is not our desire to complain of omissions, especially when there is reason to believe that the fault lies not in the intent so much as in the somewhat limited sources from whence our author's information has been derived. And while alluding to this we cannot refrain from observing that repeated instances do occur in the "bibliographical index," in which justice has not always been done in giving credit to the *original* authorities, in which cases and papers have first appeared. In justice to all parties this ought to have been done. But to return to our notice.

This truly handsome volume, which is deservedly dedicated to Prof. Charles Pope, of the Med. Dep. of St. Louis University, is divided in its arrangement of subjects into five parts. 1st. *General duties and Elementary Operations;* 2d. *Operations on the Head and Face;* 3d. *Operations practised on the Neck and Trunk:* 4th. *Operations on the Genito-Urinary organs and Rectum; and* 5th. *Operations on the Extremities.*

The first part opens with an introduction, containing some excellent observations on the importance of an operator possessing other qualifications than those of manual dexterity, and in which he insists upon the fact, that in order to be an excellent surgeon he must also, necessarily, be a good physician. The remaining portion of this part is divided into four chapters: viz., general duties of an operator; elementary operations; means of arresting hemorrhage; and duties of a surgeon immediately after an operation.

The second part is divided into thirteen chapters, which embrace surgical anatomy of the head; operations upon the head; operations on the face; operations on the appendages of the eye; operations on the eyeball; operations on the humors of the eye; plastic operations on the face; of the external nose; of the internal nose; of the mouth; operations practised within the mouth; resections of the bones of the face; and operations practised upon the ear.

The third part is divided into twenty chapters, which embraces a very interesting and important part of the volume. In it are treated the surgical anatomy of the neck; operations practised on the portion of the neck above the os hyoides; operations performed on the larynx and trachea; operations on the pharynx and œsophagus; operations for the relief of deformities of the neck; tumors of the neck; aneurisms in general; aneurism of the carotid arteries; ligature of the innominata and subclavian arteries; operations upon the chest; operations on the mammary gland of the female; operations on the walls of the thorax; operations upon the abdomen; wounds in the abdomen; hernia in general; strangulated inguinal hernia; strangulated femoral hernia; umbilical hernia: artificial anus; ligature of the iliac arteries; and operations practised on the back.

The fourth part is composed of seven chapters: viz., operations on the male genito-urinary organs; stone in the bladder; lithotripsy, or crushing of stone in the bladder; operation on the female genito-urinary organs; operations for vaginal fistula; operations practised on deep-seated organs of the female; and operations practised on the rectum.

The fifth part is composed of eight chapters. This part has evidently not that completeness or extent of research that is evinced in the former, and we think shows marks of more haste in its preparation. It is divided into general operations on the extremities; ligature of the arteries of the upper extremity; ligature of the arteries of the lower extremity; operation on the bones of the upper extremity; operation on the bones of the lower extremity; general remarks on

amputations; amputations of the upper extremity; and lastly, amputations of the lower extremity.

Thus we see that the field of discussion and the opportunities for research have been ample, and we are pleased to say that on some subjects our author has left but little to be desired. To this class belong operations for aneurism of arteries, hernia, and ovariotomy. Not so, however, with operations upon the external genital organs of females, operations upon the uterus, particularly polypus operations for extra-uterine fœtation, tenotomy and myotomy; amputation through large joints, &c., &c. Some of these subjects are of great importance, and should, we think, have received more attention in a system of operative surgery. We are led to believe, however, notwithstanding these and some other defects, that the work fills a desideratum in our home literature of surgery, and must necessarily occupy a favorable position both at home and abroad. Its design is unique—the execution evinces a good degree of talent, and a perseverance and industry truly commendable; and we look upon this labor of Dr. Smith as deserving of praise. The typographical and artistical execution is all that the most fastidious could desire; and both artist and publishers have thereby established a reputation equal to any in the country. We commend the volume to the favorable attention of our readers, with the earnest assurance that it is the only work extant which is particularly based upon the practice of some American surgeons and the contents of some *Medical Journals.*

ART. VIII.—*Operative Surgery Illustrated; containing more than Nineteen Hundred Engravings; including Two Hundred Original and Fifty Colored Drawings. With Explanatory Text.* By R. U. PIPER, M. D. Also a chapter upon the use of Ether in Surgery, from the Transactions of the American Medical Association; written at the request of a Surgical Committee of that body. By HENRY J. BIGELOW, M. D., Professor of Surgery in the Medical School of Harvard University. Boston: Ticknor, Reid & Fields. 1852. 8vo., pp. 384.

THE title above given explains sufficiently full the intention of the author in the preparation of this volume. The woodcut illustrations are principally copies from illustrated works already published. In the selection of illustrations, Dr. P. seems to have been guided by an utilitarian spirit—such as would render his work most useful to the surgeon. The text relates almost entirely to a description of

the plates; and with the exception of the chapter on the "Use of Ether in Surgery," the volume is strictly what its title purports, Operative Surgery Illustrated. The artistical execution of the engravings speaks tolerably well for Dr. Piper as an artist, although the work itself adds but little to our existing stock of knowledge.

ART. IX.—*A Practical Treatise on Diseases of the Skin.* By J. MOORE NELIGAN, M. D., M. R. I. A., Lecturer on Practice of Medicine in the Dublin School of Medicine, etc. Philadelphia: Blanchard & Lea. 1852. 12mo., pp. 333.

WE need hardly say that this work is the effort of a practical physician, and should command the attention of the profession. It comes to us as the result of a special attention given to this branch of pathology extending through a period of several years. It is written in a terse style, and contains a good account of the modern improvements in this department of medicine. We augur a good reception by the profession.

ART. X.—*Sketches of Brazil; including New Views of Tropical and European Fever; with Remarks on a Premature Decay of the System incident to Europeans on their return from Hot Climates.* By ROBERT DUNDAS, M. D., Physician to the Northern Hospital, Liverpool; formerly Acting Surgeon to H. M. 60th Regiment, etc., etc. London: John Churchill. 1852. Crown 8vo., pp. 449.

THIS interesting, and in many respects clever volume, claims more attention than the circumstances in which we are placed at present will allow us to devote to it. The medical sketches of Brazil occupy but a small portion of it, the greater portion of the volume being occupied with the discussion of the causes of intermittents, the identical character of fevers of both hot and cold climates, and the use of quinine in the treatment of not only fevers generally considered of malarious origin, but fevers in general of temperate as well as hot climates.

The following extract taken from the body of the work, will convey to our readers a condensed view of the object of the author's argument:

"It is, indeed, more than probable, that fever is the expression of a type of disease essentially one and uniform, but admitting of an endless variety of forms; the simplest being displayed in the single paroxysm of an ague. It is further more obvious on the most cursory observation, that the description of fever as a disease has,

in the generality of instances, been drawn from certain localities, and not from the whole group of febrile diseases as witnessed in different parts of the world. The typhus fever of this country is superseded by the bilious, remittent and intermittent, in southern climates—by the plague in the Levant—and by the yellow fever within the tropics. Each of these maladies, under the special influence of climate, temperature, different modes of living, and numerous agencies, effect certain peculiarities in its progress, but they are all distinctly impressed by the phenomena universally characteristic of fever as a genus of disease in every clime."

That portion of the volume which will be read with most interest, is that relating to the treatment of fevers with large doses of quinine. One of the important arguments which Dr. Dundas uses in favor of the identity of all fevers of all climates, is, that they are all equally curable by quinine. The cases which he adduces in proof of this innovation in practice, are striking, and are not confined to his own practice. Drs. Scott, Goolden, Mr. Eddowes and Mr. Hine, &c., have each related cases confirmatory of such practice. And in our own country the experience of Dr. E. D. Fenner, of New Orleans, may be said to furnish an additional argument in favor of such views. In the treatment of continued fever, Dr. D. uses quinine in doses of ten to twelve grains every two hours till the disease is arrested. The quinine is to be suspended if the urgent symptoms persist, and after seven or eight hours, small doses of tartar emetic should be given, and repeated until full vomiting ensue. For twenty-four hours then the patient should be allowed to rest, after which the quinine should be re-administered. By this treatment "in the vast majority of cases of *uncomplicated* typhus, taken at the commencement, you may calculate on complete and rapid success; and in all, you will almost invariably succeed in breaking, for a time, the diseased chain of actions—no unimportant advantage in any malady." Dr. Dundas believes that "the immediate arrest of typhus by quinine will, for obvious reasons, be more signally displayed in private patients, than in the ordinary run of those admitted into hospitals.

ART. XI.—*Examinations of Drugs, Medicines, Chemicals, &c., as to their Purity and Adulterations.* By C. H. PIERCE, M. D., Examiner of Medicines, &c., for the Port of Boston. Cambridge: John Bartlett. 1852. 12mo., pp. 264.

THIS volume must prove to the country physician and city druggist a valuable and useful publication. As a practical work it is deserving their attention.

ART. XII.—*Clinical Reports on Continued Fever, Based on Analysis of one hundred and sixty four cases; with Remarks on the Management of continued Fever; the Identity of Typhus and Typhoid Fever, Relapsing Fever, Diagnosis, &c.* To which is added a Memoir on the Transportation and diffusion by contagion of Typhoid Fever, as explained by the occurrence of the disease at North Boston, Erie county, N.Y. By AUSTIN FLINT, M.D., Prof. of the Principles and Practice of Medicine and of Clinical Medicine in the University of Buffalo, and Editor of the Buffalo Medical Journal, etc. etc. Buffalo: Geo. H. Derby & Co. New-York, G. P. Putnam. 1852. 8vo. pp. 390.

THIS volume we look upon as one of the most important contributions to clinical medicine that has been offered to the profession of this country for a long time. The toil and labor bestowed upon it, and the important result arrived at, command our admiration and praise. The author of these reports undertook the preparation of the materials which compose them with an eye directed mainly to the subject of the identity or non-identity of typhus and typhoid fever. The result arrived at is contrary to the opinion entertained by him previous to the commencement of the undertaking. A strong advocate of the opinion of the identity of the two forms of fever, he stood firm in his belief of the truth of the doctrine, which the compilation of these reports has completely overthrown. The result obtained from carefully prepared records of one hundred and sixty-four cases, has completely changed his mind, and he now declares his conviction of the non-identity or distinctive character of these two varieties of fever. We wish that our space would admit of a short analysis of the views contained in this interesting volume, but we must defer this for some future occasion. We most heartily commend these reports to the careful and candid attention of our readers.

ATT. XIII.—*Illustrated Manual of Operative Surgery and Surgical Anatomy.* By M. M. CL. BERNARD, D. M. P., and CH. HUETTE. Edited, with Notes and Additions, by WM. H. VAN BUREN, M. D., and C. E. ISAACS, M. D. Illustrated with steel engravings from drawings after nature, by M. J. Léveillé. Designed to serve as a companion to the ordinary text-books of Surgery. New-York and London. H. Bailliere. 1852. Part 2, 8vo., pp. 120, with 27 *colored* plates.

SOME time since attention was called to the first part of this beautiful work. The second part, which is now issued, is occupied with the subjects of amputations, exsections, operations upon the head, eye, ear, throat and face. The concise and perfect picture here offered of the

operations usually performed upon these parts, is such as to command the admiration and praise of every surgeon. The execution of this part is in perfect keeping with that of the first, and must tend to increase greatly the reputation of the publication. No surgeon's library can lay claim to completeness without it contains a copy of this work. By a notice in this part we perceive that arrangements are being made for the "speedy completion of the work."

ART. XIV.—*The Physician's Visiting List, Diary and Book of Engagements.* For 1853. Philadelphia: Lindsay & Blakiston.

THIS is an exceedingly useful work; one which, for convenience and time-saving, should be in the hands of every physician. It is published annually, and may be found at any of our medical bookstores.

ART. XV.—*Transactions of State Medical Societies.*

WE have received the transactions of the following State Medical Societies, containing several highly valuable reports and original communications. On future occasions, as circumstances will permit, the pages of the Journal shall contain an abstract of at least a portion of them: *Transactions of the Medical Association of the State of Missouri*, at its second Annual Meeting, St. Louis, April, 1852; *Transactions of the third Annual Meeting of the Medical Society of the State of Georgia*, held in the city of Augusta, April, 1852; *Transactions of the Medical Society of the State of Pennsylvania*, at its Annual Session, held in the city of Philadelphia, May, 1852; *Transactions of the twenty-ninth Annual Meeting of the Medical Society of Virginia*, held in the city of Richmond, April, 1852; *Transactions of the Illinois State Medical Society*, for the year 1852.

The growing interest felt in the organization and maintenance of State Medical Societies, follows as the legitimate fruit of the organization of the American Medical Association. We have faith in the present good and ultimate great value of such organizations, and hail them as the omens of the great self-preserving and ever-living vital character of our profession.

PART THIRD.

FOREIGN MEDICAL RETROSPECT.

PHYSIOLOGY.

On the Final Cause of Menstruation. By Dr. F. H. Ramsbotham. —If it is really the case, of which there seems to be no doubt, that at each menstrual period in the human female the fimbriated extremity of one or both of the Fallopian tubes embraces an ovarium, and causes a Graafian vesicle to burst and shed its contents into the canal, it would naturally be inferred that the formation of this fluid is subservient to the departure of the ovule from its ovarian bed, and designed to perform some important function in relation to its escape. Now, it would appear probable that the function is identical with the nutrition of the young ovum, and that the menstrual discharge, indeed, is nothing else than the rudiments of the deciduous membrane itself; or rather that it would have become the deciduous membrane, provided conception had occurred. And I think the identity of these two products is established by the following considerations.

An ovule ripe for impregnation, parts from the nest in which it had been elaborated, being conveyed by the grasp of the Fallopian fimbriæ. At the same time, Nature establishes an action for the purpose of preserving it, provided an opportunity of becoming impregnated by contact with the male semen is afforded it. Should that contact take place, and conception follow, the fluid formed is retained within the uterus, and is gradually converted into the deciduous membrane, which becomes the first medium of communication between the newly animated ovum and the maternal vessels. If, on the contrary, conception does not happen, the ovule perishes, and the fluid secreted for its advantage, not being required, is allowed to exude externally, as a superabundant and useless secretion.

This supposition, indeed, would require us to believe that the ovule may be impregnated, as well in the Fallopian tube, after its escape from the ovarium, as in the ovarium bed itself; and I can discover no difficulty in believing that such should be the case. In the genus aves, for example, the eggs are impregnated after they

have escaped from the ovarium, and in that of pisces the same takes place, not only after they have parted from the ovarium, but even after they have been expelled from the body of the parent altogether; so also in some amphibia, as in frogs.

The variation in regard to the time that elapses between conception and the commencement of labor, observable not only in different women, but also in the same woman on different occasions, may perhaps be accounted for by the part of the Fallopian tube at which the ovule becomes impregnated; the nearer to the uterus the ovum was, the shorter the time probably that would elapse before it arrived at the uterine cavity; the nearer to the fimbriæ, the longer would be the time, because it would have a larger portion of the Fallopian tube to traverse. The period of utero-gestation, properly so called, that is, the length of time the ovum remains within the uterine cavity, is, in my estimation, definite; while the time of transit through the tube varies considerably, after impregnation has been effected; and this variation will be sufficient to explain the difference above alluded to.

The view which I have taken of this question is strengthened by the facts, that the menstruous fluid and the decidual membrane seem both to be formed by the same tubular glands lately discovered in the uterine substance—that the decidua when first formed is of the consistence of a viscid fluid—that in dysmenorrhœa a membrane is not unfrequently formed within the virgin uterus, which has very much the external characters of the decidua, and indeed can sometimes scarcely be distinguished from that membrane, the result of impregnation—that those females who menstruate irregularly or painfully, are not so obnoxious to pregnancy as those in whom the function is normally performed—that the catamenia will sometimes appear once soon after impregnation, as though more fluid had been afforded than was required for the purposes intended—and especially that, as in the lower animals no deciduous membrane is formed, therefore there is no necessity for any menstrual secretion; and we know that woman is the only animal subject to this peculiarity.

The position, then, deducible from the foregoing observations is, not only that whenever impregnation occurs, a secretion is elaborated by the uterus for the purpose of affording nourishment to the ovum, but that, independently of conception taking place, an ovule, even in the virgin, passes periodically from the ovarium into the Fallopian tube, and at the same time, the same provision is made by Nature for its preservation, in anticipation of its becoming vivified; but that if this vivification is not effected, the fluid formed flows away, is cast off, indeed, as effete matter, and is what we properly call the menstruous discharge.

The periodical return of the discharge cannot be considered as militating against this theory, but rather as supporting it; not only because we have constantly before our eyes instances of functions in the body performed with periodical exactness, but also because we know that in those of our graminivora which bring forth but once annually,

the season of conception is so determined that the young should be produced in the spring. Thus the mare and the ass, whose period of gestation is eleven calendar months, conceive almost immediately after parturition—the mare on the ninth day after, the ass on the seventh—to the evident intent that a new progeny may be reared in the summer months. The cow, whose period is nine months, does not, however, conceive till three months after her last birth. The sheep and goat, which carry their young five months, will not take the male till the end of autumn; and the hare, whose term is only thirty days, does not become impregnated until eleven months have passed since the last parturition. This extreme variation in these different races of animals is evidently instituted with one single object—namely, that the young may be produced into the world at that season of the year most favorable for their nurture. And if Nature has been so precise in regard to the lower animals, we cannot wonder that she has displayed an adherence to a similar system in the case of the females of our own species, or that there should exist in the human subject the same kind of periodicity in regard to the perfection and escape of the ovule from the ovarium.

Nor can the waste which such a frequent loss of the ovule must entail on Nature, be regarded as an objection, since we see, as well in the animal as in the vegetable kingdom, loss to an enormous amount, exactly of the same description, constantly going on. How few seeds, comparatively, even after fecundation, become productive, and what a whole destruction of organic life is there not witnessed in the case of fishes. Of the million, or the million and a half of ova expelled from the ovarium of the sturgeon, for instance, how few are fecundated, and how few of those that are fecundated survive to be elevated into the existence of a living independent animal. If Nature permits such a waste to be inflicted on her, in the reproduction of one genus of animals, we cannot surely find difficulty in believing that the same prodigality (so to speak) may, in a minor degree, influence her operations in the human subject."—*Braithwaite's Retrospect.*

PATHOLOGY AND PRACTICAL MEDICINE.

On the Use of Gutta Percha in the Treatment of Diseases of the Skin. By ROBERT GRAVES, M. D.—"It is scarcely necessary to add that, however useful solution of gutta percha in chloroform, or any other topical applications, may prove, it would be, nevertheless, absurd to expect from them a radical cure of those chronic cutaneous affections which arise from constitutional causes, whether strumous, syphilitic, or cancroid; as well might we look for the cure of scarlet fever, small-pox, or measles, by means of remedies applied to the skin solely with the view of relieving the eruption. Still, in every chronic disease it is manifestly desirable to diminish, by topical means, the annoyance or disfigurement arising from the cutaneous affection. This relief cannot but be serviceable if it did nothing else than afford

time for the due and gradual employment of a well-directed constitutional treatment. I saw this lately well exemplified in the case of a young lady who had been under the care of an eminent London surgeon for many months, and from whose medicines she had derived no relief. She was the subject of a most disfiguring eruption, agreeing in character with the lupus serpiginosus of late writers; it occupied sparsely the nostrils and cheeks, but on the forehead it formed an extensive group of sores. Some spots it left hypertrophied after healing, but in general its course was marked by white depressed seams. It had been the seat of constant irritation, which the patient could not avoid increasing by scratching during sleep, and consequently the surface of the face usually exhibited a number of bloody points, adding to its disagreeable appearance. The entire eruption healed after a six weeks' application of the gutta percha, and she is now (what she had not been for two years) free from any cutaneous irritation. Time alone can determine whether relief will be permanent, but there can be no doubt of the great value of the advantage already gained.

I shall conclude with observing that, in psoriasis and other chronic cutaneous complaints unattended with any constitutional derangement, it is of the greatest consequence to check the growth of each new spot. This the gutta percha does most effectually in psoriasis, and when applied daily to any recent points of irritation, it smothers, as it were, each nascent centre of future blotches."—*Dublin Quar. of Journal Medicine.*

On Bright's Disease, and its Connection with Puerperal Convulsions. By Dr. Litzmann, (*Deutsche Klinik.*)—Professor Litzmann, of Kiel, has published an elaborate memoir on renal disorder in pregnant and puerperal females. He commences by describing twelve cases in which albuminuria and œdema were present; some of the women had convulsions. Three of the patients were pregnant with twins; and nine (including the twin cases) were primiparæ.

In several of the cases, especially where convulsions were present, or were threatened, or where there were symptoms of toxæmia, as amaurosis, etc., carbonate of ammonia was discovered in the blood and in the air expired from the lungs, and in the blood of the children who were born dead. This was in accordance with the view of Dr. Frerichs, that urea, when accumulated in the blood, becomes converted into carbonate of ammonia, and then produces toxæmic symptoms.

Including the twelve cases described, Dr. Litzmann has examined the urine of 131 persons; 79 during pregnancy, 80 during labor, and 80 after parturition. In these he has found albumen present in 37, and absent in 95. The examinations began, with few exceptions, in the last three months of pregnancy; in almost all cases they were repeated several times, and in several daily; yet it is possible that small quantities of albumen may have escaped notice. In order to avoid the admixture of foreign matters from the vagina, the catheter

was used, always with parturient women and those who had been delivered, and frequently in pregnant females. In the latter, as well as in those who had been confined, the urine passed in the morning was employed. Heat, and acetic, or nitric acid, were the tests used.

Of the 95 females, whose urine contained no albumen, 53 were primiparæ and 42 multiparæ. Of the 37, who had albuminuria, 26 were primiparæ and 11 multiparæ; among the latter was one who had albuminuria in her first pregnancy, and two who were pregnant with twins.

Among the 37 females, the urine of 16 was discovered to be albuminous during pregnancy. In ten of these the albuminuria continued during labor, and for some days afterwards; in four, where it was less intense, it disappeared before confinement; and in two cases, circumstances prevented the examination from being continued.

In four women who had been confined, and whose urine contained albumen, no examination had been made during pregnancy. There can be no doubt, however, from the quantity of albumen found, and the other symptoms, that it had been present.

In four females, in whose urine no albumen had been found during pregnancy, albuminuria appeared during labor—in two evidently for the first time.

In ten persons, in whose urine no albumen had been present during pregnancy, there was considerable albuminuria after delivery. In eight of these, the urine, examined during labor, was found to contain no albumen.

In three females who had been confined, and in whose urine albumen was found, no previous examination had been made.

There is a form of albuminuria unconnected with renal disease, but arising from catarrhal irritation or blennorrhœa of the bladder. Dr. Litzmann has observed it twice during pregnancy, several times during labor, but most frequently after delivery. It generally appears on the second or third day, and goes on increasing till the sixth or seventh. The quantity of albumen is not great, and is connected with the presence of purulent mucus. At first, the urine after delivery is high-colored, of acid reaction, and contains a large quantity of urates and uric acid, with epithelium and a number of pus or mucous globules. It afterwards becomes lighter and yellow in color, slightly turbid, contains less urates, and is less acid; on long standing, it deposits a sediment of pus corpuscles with more or less epithelium. Fibrinous casts of the uriniferous tubes are never present. In only two cases was the quantity of pus in the urine sufficient to be detected by the naked eye: these were more chronic than most of the others, recovery not being effected till the eighth week.

In both these cases, which Dr. Litzmann relates, there had been, during labor, long continued pressure on the urethra and neck of the bladder; and this may have acted as the proximate cause of the disease. Yet cases very often occur, in which the same causes do not produce such effects. In most of the women affected with vesical catarrh after delivery, the disease could not be attributed to the above

cause, the labors having been regular, and even easy. Dr. Litzmann is inclined to believe that slight vesical catarrh, which may not cause albumen to be present in the urine, but which may furnish a sufficient quantity of pus or mucous corpuscles to be detected with the microscope, is of not unfrequent occurrence after delivery. During and before labor the disorder is much more rare. When it occurred during labor, this had almost always been tedious, without, however, in general producing retention of urine. One of the pregnant females who were affected had rigors, and was at the same time seized with rheumatic swelling of the hands. In another, the vesical catarrh was brought on in the fourth month of pregnancy, by retroversion of the uterus. The local symptoms were generally very slight; on being questioned, the patients would acknowledge a little uneasiness or sense of heat in the bladder; but the state of the urine was generally the only diagnostic symptom. Of the 37 cases of albuminuria which Dr. Litzmann observed, he believes that half were referrible to catarrh of the bladder: this he ascertained in nine of the cases, by microscopic examination.

Simple albuminuria, and Bright's disease, (albuminuria accompanied by fibrinous exudation into the uriniferous tubes), pass gradually into each other in pregnant females. In most of the cases in which albuminuria had reached a high degree, fibrinous casts were found towards the end of pregnancy, or during labor and the early part of the subsequent period. Of the 37 cases of albuminuria, Dr. Litzmann found 13 to be connected with Bright's disease: in 7, fibrinous casts were found: in one, the urine could only be examined once, and, though not then found, they were probably present; and in five, there could be little doubt from the quantity of albumen and the concomitant symptoms—eclampsia in three cases—that they were present, although the urine was not examined microscopically.

There can be no doubt that, as has already been pointed out by Rayer, the albuminuria of pregnant females arises from a mechanical obstruction to the renal circulation. From the experiments of Frerichs, it appears that the retardation of the venous circulation on the kidneys easily produces exudation of albumen and fibrin, and finally, even of blood. On the other hand, increased arterial impulse, as from ligature of the aorta below the renal arteries, only rarely gives rise to slight albuminuria; and it is when one kidney is extirpated at the same time with the ligature of the aorta, that any notable quantity of albumen appears in the urine. In favor of the mechanical view of the explanation of albuminuria in pregnant women, may be adduced its predominance in primiparæ—a fact recognized by all observers. The tight and unyielding abdominal wall must naturally cause the uterus to press more strongly on the organs lying behind and above it. It is moreover probable, that when albuminuria has occurred in multiparæ, it has been but a repetition of the same affection which they had as primiparæ.

In many of the cases, there were also other causes which tended to increase the pressure. Five of Dr. Litzmann's patients, who had

albuminuria, were pregnant with twins; in others, there was a large quantity of liquor amnii, or a large child, or both; in one case, there were periodical contractions of the muscles, especially of the recti, pressing the uterus against the spinal column; in four cases, the pelvis was narrow. Three of the patients had chronic pulmonary catarrh. It cannot, however, be denied, that cases are often met with, in which all these circumstances are present without producing albuminuria; and, on the other hand, that albuminuria sometimes occurs, even in a high degree, without more than ordinary pressure being apparently exerted. An additional ground for assuming the dependence of albuminuria in pregnant women on mechanical impediment to the circulation, is found in the rapidity with which it disappears as soon as, by emptying the uterus, the free circulation of the blood has been re-established.

Besides the mechanical cause, we must take into account the state of the blood in pregnant women (increase of water and fibrin, decrease of albumen, diminution of the red, and increase of the colorless particles). Most of the pregnant women with albuminuria, observed by Dr. Litzmann, had a more or less chlorotic appearance; while others appeared fresh and healthy. The state of the blood did not appear sufficient to cause albuminuria, without an impediment to the circulation through the kidneys. In common with Lever, Devilliers and Regnault, etc., Dr. Litzmann has not been able to recognize cold or the abuse of spirituous liquors, etc., as the cause of albuminuria in pregnant females.—*Lond. Jour. Med.*

Treatment of Typhus Fever by Sulphate of Quina. By D. McEvers.—Since the first introduction into Europe of the Jesuits' bark in 1649, the most celebrated writers extolled its efficacy in the treatment of various diseases, but especially in fevers; owing, however, to some cause or other, it fell into disuse; and it is probable that this was occasioned by the many failures which attended its administration; failures which I now feel assured were owing principally to two causes:—first, the bark not having been given in sufficiently large doses; and, secondly, the bark not having been always of the genuine kind. Its use was revived by the celebrated Sydenham, and after the time of that eminent man, its excellent qualities were fully established by Hoffman, De Haen, Pringle, Cleghorn, and other practitioners of eminence. And it is worthy of remark, that those who were most enthusiastic in praise of this remedy gave it in very large doses. Dr. Clarke, a celebrated physician, who wrote on fever in the year 1770, was in the habit of prescribing bark in two-drachm doses every two hours, and at the same time of exhibiting it by the rectum in the form of enema; he relates that on one occasion, in mixing a dose of bark for a patient, he discovered that the apothecary had by mistake put half an ounce of bark into each paper instead of two drachms, which he had ordered; the patient had been taking this large dose for a considerable time, and got cured of a bad typhus in consequence. Now, when it is estimated that two pounds of good

bark will yield about two hundred grains of sulphate of quini, it must be admitted that Dr. Clarke's treatment of typhus was not far short of the heroic method of the present day introduced by Dr. Dundas. It is unnecessary to advert to the fact that Dr. Clarke's patients were taking a different preparation, possessing, however, the same active base.

One great objection to its general use in this country, which may be advanced, is the high price of the salt; but should the remedy be found as efficacious in the practice of others as by Dr. Dundas and myself, I feel assured that its use, when applicable, would eventually constitute the true economy of our fever hospitals.

I have placed these cases and observations together in a very hurried and, therefore, imperfect manner, but the subject I considered to be of so much importance to the profession, as to induce me to take advantage of the earliest opportunity of bringing forward the results of my experience of this new treatment for typhus; and I do so in the hope, that this notice of the subject, however imperfect, may induce others to test the value of quina in this disease, in the large doses recommended.—*Edinb. Med. and Surg. Jour.*

On the Treatment of Puerperal Convulsions during Labor at the Full Period. By Dr. Duclos and J. Bouteiller, Jr. (*Archives Générales de Médécine.*)—It is not always proper to attempt to hasten delivery. When there is excessive irritability of the uterus, and the head is far advanced, we may wait for its expulsion; but, if the convulsions are very violent, the forceps may be applied. If, on the other hand, the os is but little dilated, opiate enemata and moderate blood-letting are indicated; and, if these do not succeed, turning is the last resource.

When the labor is tedious, without absolute inertia of the uterus, but with feeble irregular pains, and convulsions, we should ascertain that there is sufficient dilatation to permit the use of the forceps, or turning, if necessary. Ergot may then be given; and, if delivery is not effected in half an hour, turning or the forceps may be used, the former being preferable.

In convulsions connected with tedious labor from deformed pelvis, from narrowing of the vagina or vulva, from disease of the neck of the uterus, or from unusual hardness of the membranes, each of these conditions must be met by its appropriate local treatment. When the waters are over abundant, the membranes must be ruptured.

In cases of excessive distension from the presence of twins, turning cannot be employed as a general rule; and the forceps can only be used under certain circumstances, as when the head of one child has passed the brim. Belladonna should be rubbed into the cervix, and the membranes ruptured; slow dilatation of the os by the fingers might render the convulsions more frequent. Ergot ought not to be given.

When a tumor coexists with labor at the full term (happily a

rare case), the treatment must be conducted on the same principles as are pointed out in cases of contracted pelvis.

When the fœtus is very large, and the os well dilated, but labor does not progress, and convulsions arise, the forceps should be employed; as also when, after the head has escaped from the uterus, there is laceration or extreme irritability of the external genital organs, producing convulsions. Rupture of the uterus must be treated according to the rules laid down in obstetrical works.

Distention of the bladder must be relieved by the catheter; of the rectum, by enemata.

Uterine hemorrhage producing convulsions must be treated according to the usual rules; mental emotions producing convulsions are an indication for prompt delivery.

Blood-letting, either from the arm, or by the application of leeches to the mastoid region and neck, is useful in certain cases; but is contra-indicated in cholorotic subjects, exhausted by hemorrhage, or worn out by gestation. Serous infiltration, connected with albuminuria, and not confined to the lower extremities, is a contra-indication. This remedy acts, the authors believe, by calming the nervous system; and they advise it as an antispasmodic. Enemata are also useful, by unloading the intestines of fœcal matter. Derivatives and cutaneous revulsives are useless, or even mischievous. Antispasmodics often produce, if not a cure, at least some improvement; they should be administered either in fomentation, in injections, or by inhalation. Draughts, pills, and powders, can only be given when the patient has recovered consciousness, and the power of deglutition. Opium and narcotics are by no means indicated in puerperal convulsions.

The authors are opposed to the use of ether and chloroform as anæsthetics in convulsions. Baths or cold affusions on the head are means which may prove serviceable.—*Lond. Jour Med.*

On the use of Indian Hemp as an Oxytosic, or Promoter of Delivery. By Dr. Grigor.—Since reading Dr. A. Christison's seven cases, conducted at the Maternity Hospital of Edinburgh, I have used the Tinct. Cannabis Indic. (24 grs. ext. to ℥ j.) in sixteen cases. In nine of these, though given to the extent of ʒ ij. ss. in separate doses of 25 and 35 drops at a time,—in some in quick succession, in others at longer intervals,—I could not perceive any increased uterine action, nor the slightest physiological change in any one way during labor or afterwards, with the exception of one instance of sleep (much required at the time) in a lady, far from strong, confined of her third child, and much exhausted by inefficient throes, in whom the third ʒ ss. dose completely arrested the pains and induced sleep, which continued for an hour, when she awakened refreshed. Labor then set in in earnest, chloroform was given, and the child was speedily born. These nine cases made good recoveries.

In the seven cases in which the tincture of hemp succeeded so well with me, five were cases of first confinement, of satisfactory though

very slow labor, and phlegmatic temperament. I have noticed the contractions acquire great increase of strength and frequency immediately on swallowing the drug, and have seen four or five minutes elapse ere the effect ensued; and if none was induced within the latter space of time, I have not observed its effects at all afterwards, notwithstanding repeated doses. In these few cases, I had opportunities of giving it from the time when the os uteri would admit the point of my finger till the expulsion of the child. Judging from experience, I believe that, in appropriate cases for the use of this stimulant, and when effectual, it is capable of bringing the labor to a happy conclusion considerably within a half of the time that would otherwise have been required, thus saving protracted suffering to the patient, and the time of the practitioner.

I have not observed it to possess any anæsthetic effects. I have used it in two cases along with the inhalation of chloroform, and I did not observe that that agent interfered in any way with its action.

When the effects of the hemp were subsiding, I have been able to recall and keep up "the good pains" by the addition of ten drops given from time to time. I consider the expulsive action of the cannabis to be stronger than that of the ergot, but less certain in its effect; and it has the advantage over the ergot, of usefulness in the early stage of parturition. I believe that the previous ineffectual administration of the hemp does not interfere with the after-exhibition and full working of the ergot.

Such are my brief observations on the new and interesting use to which Bang, or the Hachisch of India, has been put. In the few cases in which I thought its administration safe, and not counter-indicated by malformation, etc., you have given the result of those in which this effect was, and was not, displayed. I cannot conclude these remarks without entering my dissent against the use of uterine medicinal stimuli in general, on account of the frequent difficulty of accurate conception of relative dimensions of parts, etc. Yet all obstetricians must acknowledge that, in many cases, such stimuli are indispensable; and to be possessed of one capable of so early application, is decidedly a matter of much importance. I would also notice that, in labor, whether the cannabis shows its peculiar effect on the uterine contractions or not, there seems, as in tetanus, etc., to be a very great tolerance of the drug—nor have unpleasant consequences, so far as I have seen, appeared afterwards; and, whilst it is acknowledged as a powerful controller of inordinate muscular spasm, it is equally, in many cases, a powerful stimulant of the uterine muscular fibre in labor, if not in the unimpregnated state."—*Monthly Jour. of Med. Sci.*

SURGERY AND SURGICAL PATHOLOGY.

Are Primary or Secondary Amputations to be preferred? By Mr. G. J. Guthrie.—When the wound of an extremity is of so serious a nature as to preclude all hope of saving it by scientific treatment, that limb should be amputated as soon as possible.

An amputation of the upper extremity may almost always be done from the shoulder-joint downwards, without much risk to life, and, when necessary, the sooner it is done the better.

An amputation of any part of the lower extremity below the knee downwards may be done forthwith, with nearly an equal chance of freedom from any immediate danger, as of the upper extremity at or near the shoulder-joint.

It is otherwise with amputations above the middle of the thigh, and up to the hip-joint. They are always attended by considerable danger.

There can be no doubt that if the knife of the surgeon could in all cases follow the ball of the enemy, or the wheel of a railway carriage, and make a clean good stump instead of leaving a contused and ragged wound, it would be greatly to the advantage of the sufferer; but as this cannot be, and an approach to it even can rarely take place, the question naturally recurs: At what distance of time after the receipt of the injury or accident can the operation be performed most advantageously for the patient?

In order to answer this question distinctly, it should be considered with reference to two distinct states of injury:

1st. When injuries require amputation of the arm below the shoulder-joint, or of the leg below the knee, these operations may be done at any time, from the moment of infliction until the expiration of twelve or twenty-four hours, without any detriment being sustained by the sufferer with regard to his recovery; although every one, under such circumstances, must be desirous to have the operation over. The surgeon having several equally serious cases of injury of the head or trunk brought to him at the same time as too requiring amputation, may defer them more safely perhaps than the assistance he is also called upon to give to the other cases, the postponement of which may be attended with greater danger.

2d. This state embraces those great injuries, in which the shoulder is carried away with some injury to the trunk, or the thigh is torn off at or above its middle, rendering an amputation of the upper third or at the hip-joint necessary; and it is this or nearly this state which alone implies a doubt as to the propriety of immediate amputation, and demands further investigation. It is the state to which your attention is earnestly drawn for future observation.

It has been implied, if not actually maintained, that a man could have his thigh carried away by a cannon-shot without being fully aware of it, or, if aware of it, that it did not cause much alarm—in fact, that it did not materially signify, as to his apprehensions, whether the ball took off his limb or the tail of his coat, or only grazed his breeches. An instance of this kind has not fallen under my observation.

A surgeon on a field of battle can rarely have a patient brought to him, requiring amputation, under less time than from a quarter to half an hour; a surgeon in a ship may see his patient in less than five minutes after the receipt of the injury; and to the surgeons of

the navy we must hereafter defer for their testimony as to the absence or presence of any constitutional alarm and shock; and if they occur, to what degree do they follow immediately after the receipt of such injury? The question must not be incumbered and mystified by a reference to all sorts of amputations after all sorts of injuries, but to the one especial injury—viz. that of the *upper half of the thigh.*

My experience, which may be erroneous, like every thing human, has taught me, that when a thigh is torn, or nearly torn off, by a cannon shot, there is always more or less loss of blood, suddenly discharged, and which soon ceases in death, or in a state approaching to syncope. When the great artery is torn, this fainting saves life, for an artery of the magnitude of the common femoral does not close its canal by retracting and contracting, as a smaller vessel does; it can only diminish it; and the formation of an external coagulum is necessary to preserve life, which the shock, alarm, and fainting, by taking off the force of the circulation, aid in forming; and without which the patient would bleed to death. An amputation, in this state of extreme depression, might destroy life.

If the cannon-shot, or other instrument capable of crushing the upper part of the thigh, should not divide the principal artery, and the sufferer should not bleed, it is possible he may be in the state alluded to, in which the patient, for he may not be called a sufferer, is said to be just as composed as if he had only lost a portion of his breeches. Nevertheless, few have seen a man lose even a piece of his breeches by a cannon-shot, without perceiving that he was indisputably frightened.

Whilst some persons, under the loss of a limb high up, are reduced to a state of syncope, or nearly approaching to it, which renders them almost, or even entirely, speechless; others suffer extreme pain, and earnestly entreat assistance, under which circumstances, amputation should be performed forthwith. In the former, the administration of stimulants may render the operation less immediately dangerous.

Chloroform, or other similar remedies, may produce an effect in such cases yet unknown. Its careful administration may not destroy the ebbing powers of life, and may render an amputation practicable, which could not otherwise be performed without the greatest danger. It may be otherwise; the point, however, is to be ascertained, although in all cases of great suffering its use should be unhesitatingly adopted.

When the sufferer is brought to the surgeon at the end of half an hour, having lost a limb below the thigh or shoulder, by a cannon-shot, he will often be found in a state of such great depression as to be likely to be destroyed by the infliction of a serious and painful operation like amputation. This has occurred to me so often as to induce me to recommend delay for five, six, or even eight hours, if the unfortunate person did not suffer much, and appeared likely to be revived by the proper use of stimulants.

This recommendation originated from the fact, that as one seriously wounded man has as much claim as another to the attention of the surgeon, all could not be attended to at the same time; and the success following the deferred cases of amputation was as great, if not greater, than in those on which the operation was more immediately performed.

The advantageous results of *primary* amputations, or those done within the first twenty-four or at most forty-eight hours, over *secondary* amputations, or those done at the end of several days, or three or four weeks, has been so firmly and fully established as to admit no longer of dispute.

When an amputation is deferred to the secondary period, a joint is often lost. A leg which might have been cut off below the knee in the first instance, is frequently obliged to be removed above the knee when done in the second.

In the secondary period after great injuries, the areolar and muscular textures near the part injured are often unhealthy, the bones are in many instances inflamed internally, and their periosteal membranes deposit on the surrounding parts so much new ossific matter as frequently to envelope in a few days the ligatures on the vessels, and render them immovable, necrosis of the extremity of the bone following as a necessary consequence, protracting the cure for months.

Sloughing of the stump, accompanied by inflammation of the vein or veins leading to the cava, frequently take place. This state of stump is often followed by purulent deposits in and upon the different viscera, and principally in the cavities of the chest. Where febrile diseases are endemic, they often prevail; the constitutional irritation is great; the stumps do not unite, or open out if apparently united, and slough, and frequently after a few days implicate the veins.—*Amer. Jour. of the Medical Sciences.*

Dislocation of the Acromial end of the Clavicle.—Thomas Jenkins, aged 21, admitted August 3, 1852, under the care of Mr. Green. An hour before admission he was standing in a narrow way, when a coal cart passed by, the wheel coming in contact with the outer part of the left shoulder, and pressing him against the wall. On examination the nature of the injury was at once evident, for the acromial end of the clavicle was plainly seen resting against the spine of the scapula, and under cover of the trapezius muscle. The part of the spine of the scapula where the clavicle was resting on, was nearly two inches from that part of the acromial process of the scapula to which it is normally articulated. Shortening of the distance between the neck and the shoulder was well marked. In consequence of the support of the clavicle being gone, the shoulder came forward so as to give the impression that there was some displacement of the head of the humerus. There was some contusion of the soft parts at the outer and posterior aspect of the shoulder-joint. The clavicle was almost brought back to its normal position, by keeping the shoulders back, and raising the arm. A figure-of-eight bandage was therefore applied,

in the same manner as for fractured clavicle; and the arm was raised by a bandage under the elbow, and carried over the opposite shoulder. This treatment was continued up to August 21st, when he was discharged. There was but little deformity when he left the infirmary.

This was an extreme case of displacement, for in most instances the clavicle is dislocated upwards on the acromion. There was the following circumstance to be noticed in this man: On the other side, the clavicle and the acromion process were not on the same plane, so that on the application of great force, this condition of articulation would, I think, rather tend to dislocation; whereas if the two bones had been on the same plane, the clavicle would have been most likely fractured.—*Prov. Jour.*

Supposed Aneurism of Bone. By M. PAMARD.—M. Pamard, of Avignon, lately submitted to the Academy of Medicine of Paris, an instructive case of supposed aneurism of the fibula, and death, alleged to be from chloroform, a week after the operation. The patient was a young soldier, twenty-seven years of age, who, while engaged in gymnastic exercises, felt a sudden pain in the leg, and was obliged to desist. A tumor, about the size of half an egg, was now noticed over the left fibula. Various means were used for some time to disperse the swelling, but to no purpose. The man was at last transferred to the hospital of Avignon, when the tumor had reached a very large size. It was elastic, seemingly surrounded by a thin, osseous shell, closely attached to the fibula, but unadherent to the tibia. There was no fluctuation, no *bruit de soufflet*, and no pulsation. M. Pamard had recourse to extirpation whilst the patient was under the influence of chloroform, administered with an oil-skin bag, in which were several little sponges, moistened with chloroform. As the patient was not affected by the drachm of chloroform which had been poured into the bag, another drachm was added, which sent him to sleep. The tumor was opened before it was finally removed, and found distended with a considerable quantity of clots, evidently of very old formation. M. Pamard then thought that the tumor was really an aneurism of bone.

The patient fell, during the operation, into a state of syncope, though there had been very little hemorrhage; ammonia was used, and as soon as the leg was dressed he was taken to bed, where warm flannel was placed upon the limbs and the præcordial region. No reaction ever took place, the pulse regained no force, and the man remained in a passively languid state for nine days, and died, in spite of a great variety of stimulants which were used to rouse the system.

On a *post-mortem* examination, the affected leg was found completely sphacelated, and the tissues infiltrated up to the thigh, but no attempt at healthy inflammation could be perceived. The tumor was springing from the fibula, surrounded by a thin, osseous envelope; and where this was deficient it was replaced by a fibrous tissue, re-

sembling the periosteum. The interior of the tumor was filled by a considerable mass of solid clots. It was found impossible to trace the vascular connection between the cavity of the tumor and the bone. M. Pamard attributes the gangrene of the limb to the complete state of prostration into which the patient fell immediately after the operation, and thinks that the inhalations of chloroform had been mainly instrumental in that result.

Three surgeons of eminence, viz., M. Roux, M. Velpeau, and M. Cloquet took part in the discussion to which this communication gave rise. M. Roux stated that deaths of this kind had taken place before the use of anæsthetic agents was introduced, and that he doubted very much that chloroform was to blame in this instance. He had, on the other hand, several years ago described this kind of aneurism of bone, and was of opinion that the ligature of the main artery of the limb might have been resorted to, instead of extirpation.

M. Velpeau thought the tumor was more of a cancerous than of an aneurismal nature; he had seen several such growths, and would class them among the fungus hæmatodes variety. As to the chloroform, he quite agreed with M. Roux.

M. Cloquet concurred with M. Velpeau as to the nature of the tumor, but thought the chloroform very probably was the cause of death.

It is plain that the tumor in question did not present any of the symptoms of aneurism of bone, as described by Scarpa; nor will the term of fungus hæmatodes, as applied in this country, agree with the growth and appearance of the swelling. It would, with English surgeons, probably be ranked among encephaloid growths broken down by hemorrhage. As to the effects of chloroform, opinions will probably be divided; but as there was previous good health, and little hemorrhage, one might be inclined to look to the chloroform for the fatal results of the operation.—*Lancet.*

PART FOURTH.

AMERICAN MEDICAL RETROSPECT.

SURGERY.

Case of Complete Removal of the Clavicle. By A. J. WEDDERBURN, M. D., Prof. of Anatomy in the University of Louisiana.—Michael Foggerty, aged 21 years, a laborer, was admitted into the wards of the Charity Hospital on the 21st of January, 1852, with caries of the clavicle, so extensive as to require its entire removal, by disarticulation at both extremities. The operation was made whilst the subject was under the influence of chloroform.

Operation.—An incision was made down to the bone over its entire length, and sufficiently far beyond its articulating points, to enable the disarticulation to be effected. The soft parts attached to the upper surface and the anterior border of the bone, were separated—next the separation from the acromion effected—the dissection was then continued close to the bone beneath, whilst the parts were kept on the stretch, by elevating the bone from the point just indicated. During the dissection the bone broke, from its diseased condition, about one and a half inches from its sternal articulation, which rendered the dissection connected with this portion of the bone more tedious than it would have been, had there been a sufficient length of bone left to have given a purchase. For the removal of such a diseased part as this, there can be no established mode of operation. Circumstances must always govern. Caution and a thorough knowledge of the region, is all that is necessary to make such operations simple and easy. The result of this operation was perfectly successful—recovery was rapid, and the case was discharged cured, towards the last of April, in something less than three months after the operation. When the case left the hospital, the use of the arm was perfect, the shoulder occupied its natural position; it was neither depressed, projected forward, or drawn nearer the sternum, and no other evidence presented that an operation had been made, than the cicatrix. He was discharged on the 8th of April.

Treatment.—The cavity from which the bone was removed was filled with lint saturated with a solution of quinine, and kept in this condition for twenty-four hours. The next day the cut surface was brought together with adhesive plaster, over which was placed a compress of lint, wet with a solution of quinine, about 5 grains to the ounce of water. No other treatment was resorted to during the cure. The shock from the operation was so slight, that he was sitting up in twenty-four hours after the removal of the bone. The solution of quinine was chiefly used in this case for its prophylactic effects against erysipelas, which was prevailing in the hospital at the time.

The total removal of the collar-bone has been done but twice before in this country. By Dr. Valentine Mott, in its successful removal for osteosarcoma of the left clavicle, in 1828, and also, by Dr. Warren, in 1833. In Europe, it has been made by Meyer and Roux, on account of caries; by Travers, "on a boy of ten years of age, who, in consequence of a fall probably broke the collar-bone, without rupturing the periosteum, had large effusions of blood within it, which formed a tumor, that by degrees involved and destroyed nearly the whole bone, except at its sternal end.—*N. O. Med. Reg.*

On the Remedial Virtues of Fel Bovinum, and the Diseases to which it is Applicable. By A. Cummings, M. D.—I have used it somewhat extensively in my practice for a few years past, and in this article I design only to give the result of my own experience with it, and the conclusions to which I have arrived in relation to its real and comparative value. Before proceeding, however, I would remark that the *form* in which I have almost immediately exhibited it, is that of pills, made of the inspissated gall, rolled in flour, magnesia, Pulv. Glychyrriza, or some other fine powder, to render them of a suitable consistency. The gall may be evaporated in shallow basins, in an oven, or in the sun, until it become sufficiently firm to form into pills as above. This, in my opinion, is far the best method. It may be given in its liquid form, but it is less agreeable to the patient, and if not mixed with proof spirits, will soon become unfit for use. The medical properties of this agent, so far as my observation goes, are *laxative, alterative*, and *slightly tonic*. Its most valuable agency is exerted upon the stomach and liver. It seems to combine, in a remarkable degree, the three properties named above, and for many diseases to which the chylopoietic viscera are liable, I have found it a most excellent and valuable remedy. I proceed now to notice its application as a remedial agent in disease.

1*st. Obstinate Constipation.*—I am well aware that this is much oftener a *symptom* of disease, than disease *per se;* but I notice it in this place in order to speak of it in that form so common to those engaged in sedentary and confined occupations, and especially of females in large cities, amongst whom, for want of proper exercise and care, constipation is so prevalent, and detrimental. In cases of this description, I have seldom, if ever, been disappointed in obtaining relief by the use of the agent under consideration. The hardened,

compact, clay-colored fæces, so common in cases where there is more or less obstruction of the liver, are, by the use of the gall, broken down in the intestines, and rendered so friable as to be easily discharged. This result is procured, not only by the combination of the gall with the hardened concretions, rendering them soft and unirritating, but also by removing the obstruction, and permitting the natural flow of bile from the gall-bladder into the intestines. Thus it answers, in this respect, a two-fold purpose. Any one who doubts the efficacy of this remedy, by pouring a few drops of fresh gall upon hard clay-colored fæces, and observing how soon the mass becomes liquid, cannot fail to be convinced. It imparts a healthy tone to the bowels, and promotes the natural secretions which may become impaired.

2*d*. In *bilious diseases*, arising from a torpid action of the hepatic function, the gall is an excellent remedy. It seems to act as a stimulant to the liver, and promote the secretion of the bile, and also to cause it to flow freely into the bowels, and thus accomplish its normal functions in the animal economy.

3*d*. In *Jaundice*, you will find that the exhibition of gall, if continued sufficiently long, even in small doses, will not fail to accomplish a desirable and satisfactory purpose. I could relate the history of many cases in my own practice, in which there was every symptom of this disease, where the gall has acted in the most satisfactory manner. As a stimulant to the liver, I generally prefer it to blue pill or mercury in any form, though there may be chronic diseases in which the mercury or some other alterative would be preferable. Whoever, at least, will thoroughly test the powers of this agent, I am confident, will find that I have not exaggerated its value. At least I am willing to abide by the judgment of others who may test it, as to the truth of my assertions. It may be necessary to continue the exhibition of this remedy for some length of time in severe cases of jaundice, but it is perfectly harmless, and moreover it may be used in those cases in which mercury cannot be administered, on account of the prejudice of patients or their friends against it, or of any idiosyncracy of constitution where its use may be interdicted. At least it is a most valuable auxiliary.

4*th*. In *Dyspepsia*, also, I have in many cases seen the most gratifying results from the use of this remedy. It seems to impart a good tone to the stomach, and by its laxative effects upon the bowels, as well as by its soothing the irritated mucous surfaces of the stomach, proves, in my hands, at least, an excellent remedy. It leaves the influence of a mild tonic bitter on the stomach, not sufficient, however, to produce pain, and its laxative effects in dyspepsia cannot be but beneficial, for, in most cases in this disease, the bowels are torpid, and not unfrequently obstinately constipated. As a remedy also, collaterally, in

5*th*. *Hemorrhoids and Prolapsus Ani*, the gall is justly entitled to our consideration and confidence. If it has no direct or specific influence in removing these forms of disease, it is at least one of the

best laxatives in the general torpor of the bowels which accompanies them, since it not only evacuates, but soothes the bowels, and does not produce the irritation in piles and prolapsus ani that most other articles of the class do. But I am also inclined, from my experience with the article, to believe that it exerts a very favorable influence, at least, in the *cure* of these troublesome and painful affections. At least it justly merits a fair trial.

6*th.* In *Bilious and Intermittent Fevers*, the gall cannot but exert a favorable influence, since its office is not only to act as an alterative, and rouse the liver to its wonted action, but also to carry off from the bowels the superabundant bile, and to give tone to the chylopoietic system. In a word, in all those forms of disease (and they are many), arising from torpor of the hepatic system, I believe that there are few medicines that will give equal satisfaction with the one under consideration, and it is certain that no remedy is more safe in its administration and effects.

One more tormenting and dreaded effect arising from bilious derangement, in which the gall acts in a very favorable manner, I had almost forgotten to mention.

7*th. Sick Headache*, so called, though not, strictly speaking, a disease, is a sympathetic, symptomatic affection, of very frequent occurrence, and always excruciating, and dreaded by those who are subject to it periodically, or occasionally. As it arises from a bilious state of the stomach, the gall, given in small doses, and as frequently as is necessary, seldom fails to mitigate the symptoms, or entirely to relieve, or prevent its accession. It should be given in periodical cases for a season of at least a day or two before the anticipated attack.

8*th.* In *Typhus and Typhoid Fevers*, it is an excellent laxative, where strong cathartics are not required, and will be found worthy of confidence, whenever a remedy of the class seems to be indicated. Also in the low forms of

9*th. Nervous and Continued Fevers*, no beter laxative, in my judgment, can be found, since in those cases strong cathartics are almost invariably contra-indicated. But I need not particularize further, since I believe enough has been said to give my ideas in relation to the class of cases in which this remedy is indicated; and as I cannot expect to gain the confidence of practitioners without their first giving the article in question a fair and impartial trial, I have perhaps already written too much. I am confident, however, that those who may make a fair trial of it, will not accuse me of exaggeration, for I have endeavored candidly to give the value of the article as it has proved itself in my own practice, and not from theory deduced from the natural properties of the medicine. I have said it is necessary, not unfrequently, to continue the medicine for some length of time, in obstinate cases especially. But it is harmless and safe, and will act well in any constitution, and is contra-indicated by no form of idiosyncracy. The dose of the inspissated gall in the form of pills, or otherwise, is from five to ten grains or more, re-

peated every two or three hours, for a carthatic, and less for a mere laxative effect. It may be given in sufficient doses, at any time, with perfect safety to adults or children.—*Boston Medical and Surgical Journal.*

On the use of Ice as a local Anæsthetic. By W. A. Berry, M.D., of Washington, D. C.—I propose to make known to the many readers of your valuable Journal, the application of a new local anæsthetic agent, which probably is not familiar to a large majority of them. This agent is applicable to but a very limited part of the frame, but its efficiency is such as to cause its use in all like cases. I refer to the local anæsthetic effect of ice in the removal of the nails of the toes or fingers. This most painful operation is disarmed of all its terrors by this simple means, and the patient witnesses it with as much composure as his operator. The agent was first made use of in the wards of M. Velpeau, during the past summer, in Paris, by one of his internes, and afterwards successfully applied by himself in a number of cases. The ice is powdered finely and mixed with a sufficient quantity of salt; next enveloped in a thin cloth, and the two phalanges of the great toe or thumb enveloped in it; the application should not be continued over five or six minutes, this time being sufficient to produce the most perfect anæsthesia. M. Velpeau proceeds with the operation in the following manner: Immediately upon removing the ice, the nail is divided in its length with a common-sized bistoury from its free extremity to the root, then seizing each half successively with a strong forceps, it is removed with a moderate *jerk*. The frequent necessity for the performance of this operation, and the great pain attending it when removed under other circumstances, is sufficient to cause its universal application by the Profession. M. Velpeau directs the application of compresses of cold water to the part during the first twenty-four hours; and the simple cerate dressing for a few days is all that is required.

It may be objected that the reaction under the application is such as to prevent its use; I will simply say that of the six patients that I saw operated upon by M. Velpeau, no such accident occurred to any one of them; and to the one case in which we applied it but a few days since (and which has suggested this communication), we have reason to believe that the agent is free from any unhappy results.

The simplicity and efficacy of this piece of minor surgery, and the so frequent necessity of some surgical interference in these cases, has induced me to send you this communication.—*Med. Examiner.*

On the Treatment of Hemorrhage from the Umbilicus in New-Born Infants. By Francis Minot, M. D.—The treatment consisted in various astringent, styptic, and caustic applications to the navel, and the internal exhibition of substances supposed to act specifically on the liver and on the blood. Among the former class were lunar

caustic, acetate of lead, tannic acid, alum, matico, the actual cautery, &c.; also plaster of Paris, pressure, and the ligature. The latter included mercurials, taraxacum, sulphate of soda, cathartics, &c.

The treatment employed in those cases in which the hemorrhage was permanently arrested, was principally the following:

Compression in	3 cases.
Ligature in	3 "
Collodion in	1 case.
Plaster of Paris in	1 "
Scrapings of sole leather in	1 "
Nitrate of silver in	1 "

But in three of these cases the patients died, eventually, from exhaustion, or diseases evidently caused by the feeble condition of the child.

It is recommended by some writers to cut down upon the bleeding vessel and tie it. This must be a very difficult, if not impracticable operation, even in the small number of cases in which the bleeding comes from a single vessel. I think the ligature *en masse* is easier, safer, and more effectual. The ligature, however, will succeed in a very small number of cases, unless the diathesis upon which the malady depends be corrected. The same may be said of styptic and caustic applications, which in four cases actually appeared to increase the hemorrhage.

The internal use of astringents and tonics, appears to me to have been too much neglected in the treatment of these cases. I find but a single instance of their employment among thirty-three cases whose treatment is reported. We employ such remedies in purpura hemorrhagica, in scurvy, and other hemorrhagic diseases of adults; why should they be omitted in a disease so similar in its character in infants? The instance referred to was communicated to me by Dr. S. S. Whipple. The child, a male, was to all appearance perfectly sound, and weighed between nine and ten pounds. It was born on the 10th of May last, of robust parents, and after a perfectly natural labor. Thirty hours after birth, Dr. W. was called to it, and found blood issuing from around the umbilicus, rather by exudation than from any disturbance to the integrity of the parts. It was not disposed to coagulate, and was compared to cranberry juice in consistency and color. It was immediately checked by a solution of the sulphate of copper. At the end of twenty-four hours, the hemorrhage returned, more profuse, with extreme prostration. The action of the heart was imperceptible, and the respiration was accompanied by a feeble moaning. The bleeding was again arrested by styptic applications, and tincture of the muriate of iron, with brandy, was given in as large doses as the patient could bear. He soon revived, with a healthy appearance, and commenced taking the breast. The discharges from the bowels and bladder were natural, and he continued to improve in strength and appearance for four days, during which time the cord was detached without hemorrhage. On the ninth day

(second from the separation of the cord), the bleeding commenced again, and he died on the tenth. In this connection, I will also mention an interesting case lately reported to the Society by Dr. W. E. Coale; there was no bleeding from the navel, and, therefore, the case is not included in my tables; it is evidently identical in its nature with the others: A female child began to vomit blood the day after its birth. The next day she also passed considerable quanties by stool, so that two towels were saturated with it. One drop of the aromatic sulphuric acid was given this day at 11 A. M., and continued every two hours. On the third day the hemorrhage had diminished; on the fourth it was still less; but the child was pale and very feeble. A quarter of a grain of sulphate of iron in solution was now substituted for the acid. On the fifth day, the symptoms improving, the medicine was ordered every four hours; and the intervals being gradually lengthened, it was left off on the seventh day. The child recovered perfectly. So far as two cases teach anything, these afford some encouragement, and the use of the mineral acids, or other astringents and tonics should always be tried.

As to local treatment, we have seen that the ligature and pressure were each successful in three cases, and that caustic and styptic applications generally failed. The most that can be hoped from local application is a temporary arrest of the bleeding until the condition of the blood can be improved. The ligature appears to me the most likely to effect this, and the sooner it is employed the better, since every drop of blood is of importance in such young subjects. I believe the best mode of employing it is to transfix the umbilicus by two needles at right angles, and wind the thread tightly underneath them.

It is important to sustain the strength of the patient by nourishing diet and stimulants; the apartment should be cool, the clothing light, and every effort made to prevent the child from crying.—*American Journal of Medical Science.*

MISCELLANEA.

New Work on Materia Medica.—We have received a prospectus issued by Drs. Church and Seeger, of Springfield, Mass., who propose to issue in monthly parts "one of the most extensive and complete systems of Materia Medica extant, and in such a manner that it can be bound in separate volumes, with an index at its close," from the pen of Dr. William Tully, late Professor in the Medical Department of Yale College. We have long regarded Dr. Tully as one of the most erudite medical scholars of the age;—one whose rich experience, extending as it does over a period of more than forty years, ought not to be lost to the profession. We therefore hail this contemplated publication with great pleasure. We feel assured that the reputation of American medical literature will be greatly increased by this production, and that for this, the least of considerations, it ought and must be supported by the profession at large.

Prof. Lee's *Translation of Orfila on Nicotine.* With this number is completed the classical translation of this masterpiece of French medico-legal research. Those of our readers who have bestowed upon this monograph that attention which its great merits should command, can but feel thankful (as we most assuredly do) to Dr. Lee for his translation of this excellent paper—a model paper in toxicological science.

New-York Medical Times.—With the October number this excellent journal changes editorship and proprietorship. We welcome Dr. Bulkley's introduction into the editorial ranks, with a hearty wish that he may continue for a long time to honor it with his distinguished attainments.

New-York Medical College—A new professional chair, we understand, has been added to the faculty of this college, that of Medical Jurisprudence, and Joel Parker, LL. D., has been elected to fill it.

College of Physicians and Surgeons—Since our last issue Dr. John A. Swett has been appointed lecturer on Clinical Medicine in this college. This we look upon as a happy appointment. Dr. Swett is very justly esteemed a successful teacher and an able lecturer.

Miami Medical College.—By a circular advertisement we learn that another medical college has been organized under this name, in Cincinnati, Ohio. Among its faculty we notice the names of men of talent and sterling acquirements.

New-York Ophthalmic Hospital.—In April last an institution in this city, with the above name, was incorporated. Its President is the Hon. Caleb S. Woodhull, and its medical officers, David L. Rogers, M. D., and Mark Stephenson, M. D. The institution is now in full operation; and by its mode of organization, is calculated to accomplish much good.

Professor Valentine Mott.—We take much pleasure in announcing to our readers the fact that upon *our* distinguished Surgeon has recently been conferred the degree of Honorary Fellow, of the King's and Queen's College of Physicians of Ireland. This College was established in 1660. Dr. Mott is the only American upon whom the degree has ever been conferred.

Medicine Department of Yale College.—The chair of Theory and Practice of Medicine in this institution, has been filled by the appointment of Dr. Worthington Hooker, to the same. We congratulate the school on this appointment.

American Medical Association.—At a meeting of the Association held at Richmond, Va., May, 1852, the undersigned were appointed a committee to receive voluntary communications on medical subjects, and to award two prizes of $100 each to the authors of the best two essays.

Each communication must be accompanied by a sealed packet, containing the name of the author, which will be opened only in the

case of the successful competitors. Unsuccessful communications will be returned on application after June 1st, 1853.

Communications must be addressed, post-paid, to the chairman of the committee, Dr. Joseph M. Smith, 56 Bleecker st., New-York, on or before the 20th of March, 1853. Joseph M. Smith, M. D., John A. Swett, M. D., W. Parker, M. D., Gurdon Buck, M. D., Alfred C. Post, M. D.

The Sixth Annual Meeting of this Association will be held at the City of New-York, on Tuesday, May 3d, 1853.

The Secretaries of all Societies, and other bodies entitled to representation in this Association, are requested to forward to the undersigned correct lists of their respective delegations as soon as they may be appointed; and it is desired by the Committee of Arrangements that these appointments be made at as early a period as possible.

The following is an extract from Article II. of the Constitution:

"Each local society shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for each additional fraction of more than half this number. The faculty of every regularly constituted medical college, or chartered school of medicine, shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital, containing a hundred inmates or more, shall have the privilege of sending two delegates; and every other permanently organized medical institution of good standing, shall have the privilege of sending one delegate.

EDWARD L. BEADLE,
One of the Secretaries of the Amer. Med. Assoc.,
42 Bleecker street, New-York.

The medical press of the United States is respectfully requested to copy the above notices.

OBITUARY.

DEATH OF DR. JOEL A. WING. At Hartford, Con., in September last, Dr. Joel A. Wing, of Albany.

DEATH OF DR. WILLIAM ANDERSON, in this city, on the 27th of September, aged 60 years. Dr. Anderson was a Graduate of Edinburgh, and a Licenciate of the Royal College of Surgeons of Edinburgh. In 1820 he emigrated to this country, and settled in this city. In 1822, while a lecturer on Surgical Anatomy, he published the first part of a quarto volume, of a *System of Surgical Anatomy, Illustrated with Copperplate Engravings.*

DEATH OF DR. ÆNEAS MONSON, in New Haven, Con., on the 22d of Aug., of dysentery, aged 87 years. Dr. Monson, at the time of his death, was the oldest alumnus of Yale College, being graduated in 1780.

INDEX TO VOL. IX.

NEW SERIES.

A

Abscess of joints, treatment of 50
" testicle . . . 103
Alcock on injuries of joints . . 46
Amputation at hip-joint . . 184
" knee-joint . 307-330
" anæsthetics in 288
" spontaneous in utero 346-349
Amputation, Guthrie, on . . 424
American Medical Association, proceedings of 145
American Medical Association, notices of 435
Anæsthesia, death during . . 275
" in amputations . . 288
Aneurism of aorta, case of . . 130
" arteria innominata . 254
" dissecting, cases of . 141
" traumatic, case of . 362
" Holland on diagnosis of 254
Aneurism of posterior tibial artery 362
Aneurism of bone, case of . . 428
Anderson, death of . . . 438
Aorta, aneurism of . . . 130
Arnica montana, properties of . 268
" formulæ for . . . 271
Ascites, injections in . . . 260
Ayres on tracheotomy in croup . 69

B

Bartlett on fevers, notice of . 143
Bernard's and Huett's operative surgery 413
Berry on ice as a local anæsthetic 434
Blood in disease, Simon on . 389
Bladder, injuries of . . . 103
" rupture of 105-106-107-108
" " remarks on 110
Blake on diseases of California . 280
Blepharoplastic operation . . 205
Bone, aneurism of . . . 428
Boinet on iodine injections . . 260
Brooklyn City Hospital, notice of 298
Brown on traumatic aneurism . 362
Brown on ovarian dropsy . . 261
Bright's disease and puerperal convulsions 418
Buboes, treatment of . , . 57

C

California, climate and diseases of 280
Cancer of uterus, Lee on . . 266
" Simon on . . . 395
Carnochan, on elephantiasis Arabum 163
Carcinoma of eyelid . . . 205
Chloroform, compound tincture of 150
Chloroform, death from . . 275
" in gunshot wounds . 288
Cholera, statistics of . . . 244
" in England, report on . 244
" influence of sex on mortality of 245
Cholera, mineral acids in . . 293
Chancres with phymosis . . 55
Chapin, death of . . . 298
Clavicle, dislocation of . . 427
" complete removal of . 430
Coup de soleil, Lidell on . . 91
" Kilbourne on . 274
Cooper's surgery, notice of . 250
Cod-liver oil in phthisis . . 135
Cranium, fracture of . . . 259
Croup, tracheotomy in . . 69
" tincture of chloroform in 150
Cummings on fel bovinum . . 431

D

Dalrymple, death of . . . 272
Delivery, sudden death after . 267
Diabetes, pathology of . . 287
Diarrhœa, Lidell on . . . 88
Dissecting wound, case of . . 209
Dundas's sketches of Brazil . 411
" on quinine in fever . 412

Duclos and Bouteillier on puerperal convulsions . . . 422
Dysentery, Lidell on . . . 78
" treatment of . . 81
Dyspepsia, fel bovinum in . . 432

E

Eczema impetiginodes in children 258
Editorial changes, notice of . 296
Elephantiasis Arabum, case of . 163
Erysipelas, Blake on . . . 282
Ether, death from . . . 277
" in gunshot wounds . . 289
Eve's cases of lythotomy . . 292
Evers on quinine in fever . . 421
Excretion, pathology of . . 403
Eyelid, carcinoma of . . . 205

F

Fagel on quinine in fever . . 294
Femoral artery, ligature of . 163
Fel bovinum, remedial virtues of 430
Fever typhus, Upham on . . 9
" Kneeland on . 169
" Flint on . . 413
Flint on continued fever . . 413
Folts on death during anæsthesia 275
Forget on sudden death after delivery 267
Fractures, spontaneous cases of 95
Frick on pathology of diabetis . 287

G

Gangrene of lungs . . . 127
Gastritis, acute, cases of . . 211
Graves on gutta percha in skin diseases 417
Green on polypi of larynx . . 253
Grigor on Indian hemp . . 423
Gunshot wounds, remarks on . 288
Gutta percha in skin diseases . 417
Guthrie on amputations . . 424

H

Hamilton's case of neuroma . 278
Haynes' case of death from ether 277
Headache, fel bovinum in . . 433
Heart, functional affections of . 256
Hemorrhoids, fel bovinum in . 432
Herpes of vulva . . . 264
Hester on treatment of cholera . 293
Hernia, injections in . . . 290
Hip-joint, statistics of amputation at 184
Holland on aneurisms . . 254
Hurxthal on removal of pessary . 152
Hugnier on disease of follicles of vulva 263
Hypertrophy of spleen . . 94

I

Iliac artery, ligature of . . 151
Injections in ascites . . . 260
" hernia . . . 290
Intermittent fever, arnica in . 269
" fel bovinum in 433
Indian hemp, Grigor on . . 423
Innominata, aneurism of . . 254
Iodine injection in ascites . . 260

J

Jaundice, fel bovinum in . . 432
Journal of Pharmacy, notice of . 152
Joints, amputation at . . 184

K

Kempen on early menstruation . 280
Kilbourne's case of injury from lightning 273
Kilbourne on coup de soleil . 274
Knee-joint, suppurative inflammation of 40
Knee-joint, amputation at . . 307
" " remarks on 310
Knee-joint, amputation at, cases of 313
Kneeland on typhus fever . . 169

L

Laryngotomy, case of . . . 290
Lauzer on arnica montana . . 268
Lee on cancer of uterus . . 266
" lemon juice in rheumatism 76
" translation on nicotine . 112
" case of fracture of skull . 259
Lente's medical observations 51-354
Lidell on diseases of Panama . 78
" diarrhœa . . . 88
" acute gastritis . . 211
Litzmann on puerperal convulsions 418
Lightning, injury from . . 273
Lungs, gangrene of . . . 127
Lymphangioritis . . . 93
Lythotomy, summary of cases of 292

M

Manganese, an adjuvant to iron . 255
" formulæ for . . 257
Mauthner on eczema impetiginodes 258
Medical Association, proceedings of 145
Menstruation, early, case of . 280
" final cause of . 415
Meigs' obstetrics, notice of . 144

Mier on blepharoplastic operation 205
Mercury, remarks on in syphilis 60
Medical Society of N. Y. State . 294
Miller's Surgery, notice of . . 143
Minot on hemorrhage from umbilicus 434
Midwifery, contributions to . 330
Monson, death of 438
Morisseau on tumors in pregnancy 260
Morbid poisons, Simon on . . 405
Mott, Prof., notice of . . . 438

N

Neligan on skin diseases . . 411
Nervous system, disorders of . 256
Neuralgia, Lidell on . . . 91
Neuroma, pathology of . . 279
" case of . . . 278
Nicotine, memoir on . 112-219-369
" chemical properties of 113
" effects of on animals 115-373
" medico-legal researches on 117-228-231
Nicotine, salts of 381
" questions relating to . 382

O

Obituary notices . 152-272-298
Operative surgery, Smith's, notice of 408
Operative surgery, Piper's, notice of 410
Operative surgery, Bernard's and Huette's, notice of . . . 413
Orfila on nicotine . 112-219-369
Ovarian dropsy, new mode of treatment of 261

P

Panama, diseases of . . . 78
Parrish, death of . . . 298
Pamard on aneurism of bone . 428
Panaritium, Lidell on . . . 92
Paralytic affections . . . 269
Parker's surgical cases . 95-307
" on spontaneous fractures 96
Petreguin on manganese . . 255
Pericarditis, remarks on . . 138
Pessary, injurious effects of . 152
Physicians' visiting list, notice of 414
Phymosis with chancres . . 55
Phthisis, remarks on . . . 132
Perrie's surgery, notice of . . 250
Pierce on adulterated drugs . 412
Piper's operative surgery, notice of 410
Placenta prævia, Purple on 330-335
Pleurisy, remarks on . . . 128
Pond's case of rupture of bladder 105
Porter on gunshot wounds . . 288
Polypi of larynx . . . 253
Prolapsus of the umbilical cord, statistics of 347
Pregnancy, tumors in . . . 260
Professorial changes . . . 297
Precocity, remarkable case of . 280
Puerperal convulsions . . . 418
" treatment of 422
Purple on dissecting wound . 209
" rupture of the uterus . 338
" unavoidable hemorrhage 330-335
Purple on prolapsus of umbilical cord 343
Purple on spontaneous amputation in utero . . . 346-349

Q

Quekett's histology, notice of . 144
Quinine in fever . . . 294

R

Ramsbotham on menstruation . 415
Recamier, death of . . . 272
Review of Swett on the chest . 125
" Simon's pathology . 388
Rheumatism, lemon-juice in . 76
" Lidell on . . 92
" Blake on . . 282
Rogers, death of 298
Rupture of the bladder, cases of 105
" uterus, cases of 338
" " remarks on 340
Rupture of the uterus, frequency of 340
Rynd's case of rupture of the bladder 107

S

Scrofula, Simon on . . . 400
Scrotum, sloughing of . . 354
Simon's pathology, review of . 388
Smith on amputation at hip-joint 184
" operative surgery, notice of 408
Spasms, arnica in . . . 269
Spencer, Dr., death of . . . 152
Spleen, hypertrophy of . . 94
Spontaneous fractures, cases of . 95
" amputation . 346-349
Stone on inflammation of knee-joint 40
Suppurative inflammation . . 40

Swett on diseases of the chest . 125
Syphilis, Lente's observations on 52
" of vulva . . . 265

T

Testicle, abscess of . . . 103
Thompson, death of . . . 272
Transactions of State medical societies 414
Tuberculosis pulmonum . . 93
Tully's materia medica . . 437
Tumors in pregnancy . . 260
Typhus fever, Upham on . . 9
" quinine in . . 421
" fel bovinum in . 433
Typhoid fever, arnica in . . 270

U

Umbilical cord, prolapsus of . 343
" knots in . . 345
" spontaneous amputation from . . . 346-349
Umbilical cord, hemorrhage from 434
Unavoidable hemorrhage, Purple on 330
Unavoidable hemorrhage . 330-335
Upham on typhus fever . . 9
Urethra, foreign body in . . 105
Uterus, cancer of . . . 266
" rupture of . . 338-340

V

Vincent, death of . . . 272
Vulva, disease of . . . 263

W

Watson on radical cure of hernia 290
Warren's case of rupture of bladder 110
Warren's case of laryngotomy . 290
Wedderburn, ligation of iliac artery 151
Wedderburn, complete removal of clavicle 430
Wing, death of 438
Wiley, Dr., death of . . . 152
Wood's case of rupture of bladder 110
Wood's practice of medicine, notice of 142
Wounds, gunshot, remarks on . 288
" dissecting, case of . 209

ERRATA.

Page 163, 6th line from top, for "Elphantiasis" read "Elephantiasis."
" 253, 15th line from bottom, for "Scarifications" read Cauterizations."
" 316, 11th line from top, for "several ends of the conical ligaments" read "several ends of the crucial ligaments."
" 345, 12th line from top, for "umbilica" read "umbilicus."
" 352, 3d line from bottom, for "Meckel's" read "Meckel's."

☞ Several other typographical errors occur throughout the volume, which the reader will easily discover, and is requested to correct.